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# THE ELEVENTH YEARBOOK

OF THE

## NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

### PART I

### INDUSTRIAL EDUCATION: TYPICAL EX- PERIMENTS DESCRIBED AND INTERPRETED

BY

F. M. LEAVITT, G. A. MIRICK, M. W. MURRAY,  
J. F. BARKER, H. B. WILSON, C. F. PERRY, A. L. SAFFORD, P. JOHNSTON  
M. BLOOMFIELD, B. W. JOHNSON

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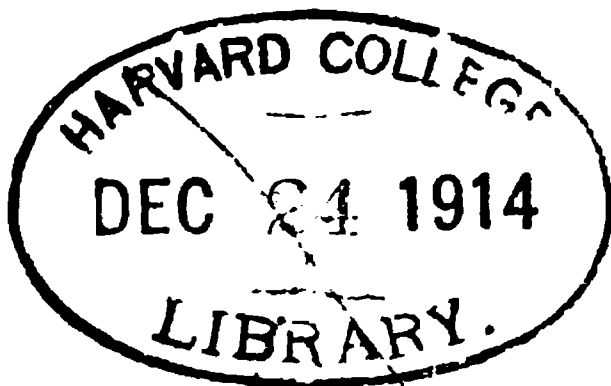
*Edited by S. CHESTER PARKER, Secretary*

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THIS YEARBOOK WILL BE DISCUSSED AT THE ST. LOUIS MEETING OF THE  
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## PREFACE

At the Mobile meeting of the National Society for the Study of Education, it was decided that one of the 1912 Yearbooks of the Society should be devoted to a discussion of the actual progress that is being made in organizing schools for industrial education, and to an interpretation of the various lines of experimentation which are being undertaken.

In recent years there have been many notable discussions of the social and theoretical justification for industrial education. Perhaps the best known of these discussions, because of its wide circulation, as well as its thoroughness, is the report of the Committee on the Place of Industries in Public Education, made to the National Education Association in 1910. In spite of this widespread general discussion, however, there are many educators (who are not specialists in industrial education) who are not aware of what is actually being done to solve the problems which have been so thoroughly analyzed in print. Even among the leaders in industrial education, some of those in New England are not informed concerning the work being done in the Mississippi Valley, and vice versa; and many are totally ignorant of what is being done on the Pacific Coast. Some of the contributors to this *Yearbook*, who are firm believers in the special plans which they describe and have been successfully engaged in organizing, have expressed their surprise at their failure to locate other examples of the same type of undertaking. Further evidence of this overplus of theorizing, coupled with a dearth of concrete evidence, is found in some of the books on industrial education which exhibit considerable ignorance of real experiments while they elaborate at length on purely paper schemes for industrial education.

To carry out the plan adopted at Mobile, the Secretary secured the assistance of Professor F. M. Leavitt, of the department of Fine and Industrial Arts of the University of Chicago. Professor Leavitt kindly classified the experiments which are being tried, as shown in the Table of Contents, suggested as many examples as he knew, and assisted in securing contributors. Each contributor was requested, first, to describe in some detail the history, organization, and results of the particular school with which he is connected as the best example of the type; second, to compare it with other schools of the same type; and









## THE TRADE SCHOOL

Neither the prevocational school, the separate industrial school, nor the vocational high school claims to *teach a trade*. The trade school, generally speaking, does not claim to teach anything else. It is a "finishing" school and the pupil enters it only when he has determined what occupation he desires to follow. What the law school is to the lawyer, or the normal school is to the teacher, the trade school is to the young man or woman who has definitely determined to fit himself or herself for some chosen industrial position.

Usually the only requirement for admission is an age requirement, generally sixteen years of age or over, and it is not uncommon to find among the pupils in the trade school great variety in previous schooling. In the trade school may be seen high-school graduates, elementary-school graduates, and those who have not passed the fifth elementary grade.

The purpose of these schools is always clearly defined. They are intended to be thoroughly "practical" and to concentrate on the development of special skill and speed in the technique of a specific trade, and to give considerable actual experience in shop processes and shop methods of production.

The trade school is not articulated in any important way with the school system, for, while it may receive pupils from prevocational or separate industrial schools, the preparation given in these schools is not demanded for admission, and the school does not fit its pupils for some higher institution, but seeks to prepare them for a particular place in the industrial world.

## THE PART-TIME CO-OPERATIVE PLAN

The part-time co-operative plan recognizes the fact that one may be educated *by* his work as well as *for* his work; it further recognizes that the desirable combination of work and study which was formerly possible for large numbers of children and youths is today well-nigh impossible without a carefully planned scheme of co-operation between the employers and the schools. The plan further recognizes that there is nothing more unfortunate in our social order than the necessity which confronts so many children of choosing between *all school* and *all work* at an early age.



The plan contemplates an arrangement of school program and shop employment whereby the pupil gains practical shop experience by working for an employer, and systematic instruction in the science and art of the industry in the courses offered in the school. The pupils work in the school and in the shop during alternate and equal periods, usually weekly, and receive wages from their employers while in the shop.

While the plan is capable of wide application, it should be noted that it cannot take the place of, or in any way render unnecessary, the other types of vocational schools included in this study, since the opportunities offered by it are limited to the number of co-operating employers and shop positions which the school authorities can secure. In some instances only a small percentage of the pupils who apply for such opportunities can be received. It is obvious that the public school must be more inclusive in its program.

#### THE CONTINUATION SCHOOL

The continuation school also depends upon co-operation between the employer and the school. A minimum amount of time, however, is devoted to the school work, generally from four to eight hours a week.

The co-operative schools organized on the half-time basis are planned for those who are still in the school system but who are feeling the pressure of economic conditions, or the urge of real life. The continuation school, on the other hand, is planned for those outside of the system, and already engaged in gainful occupations.

Pupils who have severed their connection with the schools without completing even the work of the elementary grades are induced to spend from four to eight hours a week in school, either continuing the regular grade work, or studying some phase of the vocational work in which they are engaged. The first schools of this type in the United States were held in the evening, but recently school authorities have endeavored to secure the co-operation of employers, and to provide for such instruction within the limits of the working day. In two states laws have been enacted which, under certain conditions, require the employers to permit children in their employ, who are between the ages of fourteen and sixteen years, to attend such schools without loss of pay.

These schools are more inclusive than the half-time co-operative schools, since provision can readily be made for all who desire or may be required to take the instruction provided.

## VOCATIONAL GUIDANCE

Vocational guidance is a necessary corollary of vocational education, and the ultimate success of either one will depend upon the ability of the school system to furnish some measure of the other.

When the ideal of the school was to furnish an identical education for all children there was no need for guidance within the school, and there was little or no information within the school organization to insure the giving of intelligent advice regarding the major portion of the vocational field. Such advice as was given was generally confined to those who were fitting for professional life.

But with the widening of the educational horizon, and the broadening of the school's sympathy and interest, and especially with the wide opportunity for differentiation of purpose and method to be found in the schools, the absolute need for intelligent direction within the school, and for wise council and immediate assistance on entering upon vocational work, becomes apparent.

Vocational guidance, therefore, may concern itself with the choice of schools and curricula within the school system, with the minimizing of the difficulties and dangers attending the transition from school to work, or with the council and advice so frequently needed after the young worker has actually entered upon his work to keep him steadfast in his efforts and to induce him to continue, wherever necessary, some line of related study or practice.

## II. PREVOCATIONAL INDUSTRIAL TRAINING IN THE SEVENTH AND EIGHTH GRADES

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GEORGE A. MIRICK

Acting Superintendent of Schools, Indianapolis, Ind.

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| 2. Indianapolis                                | 7. Lists of Activities                      |
| 3. Boston: North Bennett St. Industrial School | 8. Points of Agreement and Difference, Cost |
| 4. Cleveland                                   | 9. General Principles                       |
| 5. St. Paul                                    | 10. Conclusion                              |

### INTRODUCTION

The general content and method of this report was determined by the Secretary of the National Society for the Study of Education. . He specified that it should be an "account of what has actually been accomplished" in prevocational industrial training in the seventh and eighth grades—that this accomplishment should be shown (*a*) by "a history descriptive of the organization, work, and results" in Indianapolis; (*b*) "by comparing the work of the Indianapolis schools with that of Boston (North Bennett Street Industrial School), Cleveland, St. Paul, and Newark, N.J."; (*c*) "by an interpretation of the type in terms of a statement of the way in which it meets the needs of the educational situation."

### INDIANAPOLIS

A more extended report than can be made here may be found in the *Proceedings of the Western Drawing and Manual Training Association*, May, 1911.

Briefly, this program was started by Dr. C. N. Kendall, then superintendent of schools, in the department of one school. (In Indianapolis all seventh and eighth grades are organized on the department plan.) This program was started as an experiment to determine if the educational needs of a body of seventh- and eighth-grade boys and girls, made up largely of the non-book-minded, could be more fully met by a course of school work consisting of activities fundamental in the industries for one-third to one-half of the school time and of book-study for the balance of the time. The activities and the book were to be so related that the

one should support and vitalize the other, but in a way to retain all the values that we have been accustomed to believe inhere in the inherited book curriculum.

*Character.*—This “semi-industrial” course of study is, and is not, “vocational.”

It is not vocational, in that no effort is made to have the pupils choose a specific line of work with the purpose in view of going into that as a business after they leave school. All the boys follow the same course of industrial work and all the girls the same course of industrial work. Boys and girls recite in separate classes except in the subjects that do not relate to the “activities.” The purpose is to make the industrial work broad in its scope, but to carry each activity far enough to give an opportunity for the acquisition of sufficient skill to give satisfaction to the worker. On completing this course the pupils have the same opportunity that the graduates of other grammar schools have of entering either of the two high schools.

This course, while not vocational in the sense that it involves an early choice of a life-work, is vocational in at least three senses:

1. It is vocational in the sense that the methods of work followed in the various industrial activities are those followed in up-to-date industrial concerns, and the tools used are those used today in these industries. The mechanical habits and the industrial points of view would, it is assumed, “carry over” into similar occupations outside the school.

2. It is vocational in the sense that the commercial standard of quality in the product is made the school standard of quality. This standard, however, is kept in a subordinate place, as the product in school is an educational means, not a money-making end.

3. The semi-industrial course is vocational in the sense that through it the pupils gain a first-hand knowledge of the elements of various occupations and learn something of the possibilities and of the outcome of these occupations. They should become more intelligent in their final choice of an occupation. A part of the time devoted to industrial work is given up to repair work and to making things used in the schools. Several hundred dollars a year are saved to the school funds in this way. A part of the time is given to making things for personal use or for sale. The making of these things is not an “extra” but is made a part of each line of work.

*Motives.*—The new plan of study not only involved industrial activities to meet the tastes and aptitudes and possible later economic needs of pupils, but it involved also a more varied appeal to interests and furnished a greater variety of motives. Any interest or motive that will keep a boy or girl hard at work is considered legitimate.

*Teachers.*—The teacher is a most important factor in the semi-industrial school problem. The school training of a majority of teachers unfits them to deal with a course of work based on practical application and with an educational process in which the pupil's point of view, tastes, aptitudes, and capacities are to take precedence over her own. The shopmen, the sewing-teachers, and the cooking-teachers have all had some work in the "trades," but not as much as is desirable. The academic teachers are all conscious of the need of relating the book to the activity, and some progress is being made. Some teachers have confessed an inability to adapt themselves to the new program and they have been replaced by others. On the other hand, this new work has appealed strongly to some teachers. It has opened up a new field of usefulness to them, and they have been glad to take summer courses in order more adequately to fit themselves to take up this work.

Inasmuch as the central idea of this semi-industrial program is that the "activities" are an inherent part of the course and not an "extra," it follows that the teachers in charge of the "activities" and the teachers in charge of the books shall form one body. It also follows that not as many book teachers are needed. This year one "book" teacher has been dispensed with in each department by giving to one teacher, specially trained in each subject, the sewing and girls' artwork. This teacher is also competent to teach one or more other subjects. It would be an ideal arrangement to have the teacher of English also teach the printing. However, no English teacher has had practical printing experience.

*Pupils.*—Almost exclusively, the pupils are of the seventh and eighth grades. The course is not optional in the schools in which it has been placed. No pupils have asked for transfer to buildings where the "book" courses prevail. One school is so situated that it can receive pupils from other buildings. From five to fifteen such boys are received each term. So far the girls have preferred to stay at the home school.

A few overaged boys from the sixth grade have been advanced to the seventh-grade semi-industrial work. They are able to maintain their advanced standing.

*Curriculum.*—

## SEMI-INDUSTRIAL SCHOOLS

*(Departmental)*

## SEVENTH AND EIGHTH YEARS

The following general program is supplemented by a more definite statement regarding the different subjects.

## I. THEORY

Subject	Number of Exercises per Week	Minutes per Week
English.....	..	240
1. Composition (dictation).....	..	..
2. Reading.....	..	..
3. Spelling.....	..	..
Word-study.....	..	..
4. Grammar.....	?	..
Mathematics.....	4	120
Geography, history, civics.....	3	90
Hygiene.....	1	30
Penmanship.....	?	..
Music.....	..	60
		<hr/>
		540

## II. PRACTICE

(A) Boys.....	..	490
1. Shop.....	..	..
(a) Benchwork; (b) mechanical drawing and designing (90 minutes).....	..	..
2. Printing.....	..	..
3. $\frac{1}{2}$ Iron-work.....	..	..
(B) Girls.....	..	490
1. Home economics.....	..	..
(a) Cooking; (b) housekeeping; (c) sew- ing; (d) cleaning and dyeing of textiles; (e) weaving; (f) mechanical drawing and designing (90 minutes).....	..	..

## III. STUDY, ETC.

Study.....	10	300
Opening exercises.....	5	50
Physical exercises.....	3	45
Recesses.....	5	75
		<hr/>
		465
		<hr/>
Total minutes in week.....		1,500



## NOTES ON THE THEORY PART OF THE SEMI-INDUSTRIAL PROGRAM

## ENGLISH

1. The time allotted to English may be divided so as to meet local needs.
2. Some reading should be done in connection with the industrial work, during the reading periods, in "Shop" and "Home Economic" time, and at home. Books should be read and discussed which throw light on the general industrial problem, which give information on the various available occupations, and which deal with specific materials used by the pupils.
3. The words for spelling should be not far in advance of the immediate needs of the pupils.
4. Grammar should be continued from the sixth grade incidental to composition. Special lessons should be given only as needed.

## MATHEMATICS

1. The course of study laid down for the regular schools will be followed. The material for examples will, however, be drawn as far as possible from the work actually going on in the shop, sewing-room, and kitchen.
2. Shop records for labor time, quantity and cost of material, etc., will be kept under the direction of the industrial teachers.
3. Bookkeeping will be taught to the extent that it is actually needed in the conduct of the shop, sewing-room, and kitchen.

## GEOGRAPHY AND HISTORY

Without neglecting the course of study laid down for the regular schools, the geography and history of industrial and commercial activities should be emphasized in the general reading and in the periods devoted to these subjects.

## PENMANSHIP

Classes should be organized for those who need this work.

## ACCESSORY

An excursion should be taken by each pupil at least once each term to a place where a phase of the world's work may be observed.

Pictures and lantern slides should be used for illustrations.

To interrelate the book and the activity is not easy. Some progress is being made. At present the heads of the departments of art, domestic science, and manual training are at work upon plans that promise well.

*Guidance.*—A graduate of one of the semi-industrial schools has the same opportunity as the graduates of other schools have of entering the high schools, either the Technical or the English-Latin. More guidance should be given all grammar-school graduates in their selection

of high-school courses than is at present given in Indianapolis, and more assistance should be given in entering industrial life. This field of choice the coming term, for the graduates of these semi-industrial schools, will be limited in a conference between the principals of the high schools and the principals of the grammar schools.

*Results.*—1. The plan being tried this year of giving advanced work to graduates of these semi-industrial schools at the home school is not proving a success. The classes returning for this work have in general been too small for economical handling, and it has been found that the elementary-school equipment has not met their needs. This “post-graduate” work will be discontinued at the close of this term. A special school is needed, if high-school work is to be done in a satisfactory and economical manner.

2. Without exception the boys and the boys’ parents accept this modified school work with enthusiasm. In general, the girls and their parents are glad to have a more practical turn given to the school work. There has been, however, now and then, on the part of one or more girls and their mothers, objection to “so much sewing and dish-washing.” In most cases the trouble has been found to lie in the fact that the work at these points was not really on a practical, worth-while basis. By placing the work in the hands of a teacher who had had more real “trade” experience the objection has disappeared. However, there may be here a real problem that should be recognized.

3. Experience so far confirms the suspicion held by many that for many of the boys and girls five hours a day spent on the study of the abstractions and the generalizations of knowledge is partly misspent. It appears to be generally true that classes and individuals are taking a higher rank in their book studies, as indicated by marks, and are showing a better understanding of these studies than they have formerly done. This phase of the matter resolves itself into the question, “How much time can a child spend efficiently on the study of books alone?”

4. The question just proposed must be carried from the “semi-industrial” school to the “regular” school. It is a sequence, perhaps, rather than a result that the supervising principal and the parents in two of the “best” sections of the city are taking up the study of the semi-industrial program, with the view of determining whether or not it is not in essence a more educational and more cultural program for all children. One of the schools in a similarly favorable district is introdu-

cing some handwork in weaving and pottery by request and partly at the expense of the "Parents' Club." The teaching is done by the regular teachers in school time.

*Equipment.*—It was early discovered that each "activity" must have its proper place in which its peculiar "atmosphere" could be created. For the boys there must be a wood-working room—with a place for staining and a place for machines; a room for the printing, and if metal-work were done, a special room for it with machines and a forge. For girls there are needed a kitchen, butler's pantry, and dining-room (en suite if possible), a laundry, a sewing-room with sewing-machines.

*Machinery.*—The introduction of machinery has been forced in the development of the plan of work. It has been found that both boys and girls are capable of using machines much earlier than it was suspected by some and it is not yet clear how far the educational needs of the children will push development in this direction.

#### BOSTON

*North Bennett Street Industrial School.*—This is a private enterprise, conducted "for educational and social improvement and for research and experiment in educational and social methods."

Full information may be found in the *Annual Reports* for 1909, 1910, 1911. These will be sent to anyone on application. They are most valuable contributions to the literature of the subject under consideration. This report is made up largely of extracts from these *Reports*.

*Purpose.*—The school is working to better the life of all members of the neighborhood. For children of compulsory school age it is trying:

1. To illustrate a possible modification of the upper grammar-school course which will be especially adapted to pupils who will leave school early to enter industrial pursuits.
2. To develop within the public school an increasingly vital form of manual training in several materials, sympathetically adapted to meet the fundamental instincts and interests of those to whom it applies, and so correlated with academic subjects as to cause these to function more certainly as elements in a liberal education.
3. To provide, after school hours, supplementary industrial work for members of public-school classes, and also such handwork as is adapted to children of school age or under who have no other opportunity for this training.
4. To develop spontaneous and wholesome recreational life through folk-dancing, music, and supervised play.

**Foundation.**—This organization was founded in 1880 and therefore has been for thirty years a pioneer in the lines of educational work enumerated.

**Relation with public schools.**—By arrangement with the Boston School Board sixty-five pupils, boys and girls, have been transferred from a near-by public school to this school for the last two years of their grammar-school work.

Plans are subject to the approval of the Board of Superintendents of the City of Boston. Pupils have been selected by the masters of the respective grammar schools in consultation with the director of the North Bennett Street Industrial School and the parents of the pupils. While it will be possible for these pupils to continue their education by taking a high-school course if they desire, the aim has been to select those who must go into industry early and so especially need this training. A special certificate will be issued to those who satisfactorily complete two years' work. The North Bennett Street Industrial School bears all expense of the experiment with the exception of furniture for the boys' classroom, and such of the textbooks in use in the city schools as are suitable for these classes.

#### COURSE OF STUDY—BOYS

FIRST YEAR		SECOND YEAR	
	Hours		Hours
<i>Shopwork—</i>		<i>Shopwork—</i>	
Wood—benchwork.....	6	Wood-turning, benchwork, and metal-work.....	6
Printing.....	2	Printing.....	2
Practical mathematics.....	3½	Practical mathematics and business forms.....	3
English literature and com- position.....	6	English literature and com- position.....	2
Geography and history.....	3½	Geography, history, and civics.....	3
Drawing, freehand and me- chanical.....	1½	Drawing, mechanical.....	2
Hygiene and personal habits.	½	Hygiene.....	½
Total.....		Total.....	
	22½		22½

Fifteen minutes daily allowed for recess and fifteen for general exercises complete the schedule on the basis of a five-hour day.

"The industrial work consists of shopwork and printing. The most of the members of the class had not had woodwork when they entered, so it has not been found possible to deviate greatly from the usual forms of manual training. In addition to this, the pupils have done

pieces of repair-work about the building with one of their own number acting as foreman. It is the foreman's duty to keep account of each boy's time and the amount of material used, and to present at each session all data necessary for academic study. He also makes an estimate of each boy's ability and prepares a written criticism of his work. It is evident that no suitable textbooks or courses of study are available and that all the instruction involves original work and preparation on the part of the teacher.

"Arithmetic and drawing are developed in close correlation with shopwork. Much of the reading is selected from *Current Events*. The language-work, oral and written, is a discussion of current events, descriptions of shop processes, business letters, so that accuracy of speech will be appreciated. Lessons are given in spelling from lists of words occurring in the day's work. Geography is developed naturally from the shopwork to materials in use, the sources of the materials, means of transportation, and thence to the principal industries of Massachusetts and the steamboat lines and export trade from Boston. This, again, leads to the study of other countries, and questions of history and politics. The pupils are led out by observation of their own environment through the greater complexities of the industrial world, and made to feel that school work is a part of life.

"Outlines of lessons, specimens of work, lists of materials, etc., are kept on file, and copies are furnished on request. As practically none of the school systems that are attempting this form of instruction have made their material available, there has already been a considerable demand made upon us."

#### COURSE OF STUDY—GIRLS

FIRST YEAR		SECOND YEAR	
	Hours		Hours
Sewing, hand and machine, simple garment making, study of materials. ....	6	Sewing, hand and machine, simple garment making, and embroidery. ....	6
Cooking and housekeeping. ....	3	Cooking and housekeeping. ....	3
Design. ....	1	Design. ....	1
Arithmetic. ....	6	Arithmetic. ....	4
Geography and history. ....	3	Business conditions and methods. ....	1½
Literature, composition, and spelling. ....	4½	Civics. ....	1½
Gymnastics and hygiene. ....	1	Literature and composition. ...	4½
		Gymnastics and hygiene. ....	1
Total. ....	22½	Total. ....	22½

Fifteen minutes daily allowed for recess and fifteen for general exercises.

These classes like other public grammar schools of Boston, are in session from 9 A.M. to 12 M. and from 1:30 to 3:30 P.M. daily, except Saturday, with the usual vacations and holidays.

The sewing course is planned to meet the immediate needs of the girls as the work of the year is carried on. First, cooking-uniforms, towels, handkerchiefs; then undergarments, shirtwaists, dresses, curtains for the school, and shop aprons for the boys. The pupils do their own planning and cutting. Some simple drafting is done that pupils may better understand how to use the patterns they buy.

The pupils furnish their own materials, selecting and buying after some study of what is good and reliable. Each pupil keeps an account of the amount of material, cost, and time required for each garment, and marks each finished article, "Excellent," "Good," or "Fair," as she thinks it deserves.

In cooking, recipes for family amounts are used, and the pupils are allowed to do as much of the marketing as possible. Planning of menus with reference to nutriment and cost, as well as correct serving, is a valuable part of the work. The care of the house, with especial lessons in cleaning various materials, is also given a prominent place in the course.

The method of teaching has been in all subjects that of development, with direct application to the industrial work and to everyday problems. Arithmetic has been correlated with wage-earning under different conditions, calculating amounts and costs of materials, household and personal accounts and receipts, carpeting, papering, etc. History has dealt with the development and growth of industry of the different sections of the country, while geography has been the study of the raw materials that are necessary to men in the form of food, shelter, and clothing. English has probably been most closely related, as it has been used for expression of all the other subjects in forms of letters of all kinds, descriptions of excursions, and criticisms on work of all kinds.

Much interesting work has been done in making out costs of outfits in clothing for one year on the basis of a working-wage of \$6.00 per week. Below is an uncorrected estimate. The girl allows \$3.00 to her family; \$1.50 for carfares and lunches, leaving \$1.50 per week for clothing, which amounts to \$75.00 per year.

## OUTFIT AS PLANNED BY ONE OF THE GIRLS WITHOUT CORRECTIONS

### WINTER OUTFIT

1 winter coat.....	\$10.00	
1 hat for work.....	3.00	
2 prs. of shoes.....	4.00	
3 homemade shirtwaists \$0.50 each.....	1.50	
2 sets of underwear, \$1.00 set.....	2.00	
1 pr. of corsets.....	1.00	
3 homemade corset covers \$0.25 each.....	.75	
4 prs. of stockings \$0.20 each.....	.80	
1 black petticoat.....	.75	
2 white petticoats.....	4.00	
1 pr. of rubbers.....	.50	
1 umbrella.....	1.00	
1 pr. of gloves.....	1.00	
2 flannel petticoats.....	.58	
1 black outside skirt.....	3.50	
1 doz. handkerchiefs.....	.70	
	<hr/>	
Total.....		\$35.08

### SUMMER OUTFIT

2 sets of underwear.....	\$ 2.00	
2 combination suits.....	1.50	
1 black petticoat.....	.75	
1 white petticoat.....	2.00	
2 corset covers \$0.39 each.....	.78	
1 underskirt.....	.50	
1 summer dress.....	3.00	
1 pr. of shoes.....	2.00	
3 pr. of stockings \$0.20 each.....	0.60	
1 pr. corsets.....	1.00	
1 hat.....	3.00	
1 spring suit.....	10.00	
3 homemade shirtwaists.....	1.50	
1 pr. of gloves.....	1.00	
	<hr/>	
Total.....		\$29.63

## ODDS AND ENDS

2 yds. of ribbon.....	\$ 0.50	
2 pkgs. of hairpins .....	0.25	
4 neckties, \$0.25 each.....	1.00	
Fancy pins.....	0.50	
4 stiff collars, 2 for \$0.25.....	0.50	
Set of combs.....	1.00	
3 homemade jabots .....	0.30	
	<hr/>	
Total.....		\$ 4.05
		<hr/>
		\$68.76
		<hr/>
		75.00
		<hr/>
For pleasure.....		\$6.24

## CLEVELAND

A report upon the Elementary Industrial School was issued by Superintendent Elson in 1910. A rather full report upon the history, purpose, and work of this same school by Professor Frank M. Leavitt may be found in the September number, 1911, of the new magazine, *Vocational Education*.

*Purpose.*—The school was opened in September, 1909. It received boys and girls from any school in the city recommended by the teachers and principals. They have been largely the “failures” in the regular schools. There are at present about fifty girls and one hundred and twenty-five boys from the fifth to the eighth grades. The equipment for girls’ work has not been as fully supplied as that for boys’ work. The purpose has been to provide a modified plan of *general* education rather than of *industrial* training.

*Teachers.*—Shop or trade experience has not been required of teachers. They are men for shopwork and women for girls’ activities and for all academic studies, selected from the manual-training corps and from the regular teaching force because of special interest in and aptitude for the peculiar work of this school.



*Curriculum—*

## FIRST YEAR, BOYS

## DRAWING

*Simple working drawing—*

Freehand Sketching—Representation of simple objects, graphically and in view-drawing.

Working Drawings—Simple objects illustrating necessity for and arrangement of views. Conventions of lines, dimensions, sections, etc. Drawing to scale. Application in working drawings for the shop. Subject related closely to industry by using much illustration material, drawings, blue-prints, etc., and by visits to shops and drafting rooms.

*Practical outlook—*

Work as mechanical or architectural draftsmen.

*Simple lettering—*

Plain letters and figures used in mechanical and architectural drawing.

Application in connection with working drawings and sketches in the shop.

*Composition in lettering—*

Types of letters used in reference to artistic effect in spacing and in relation to margins and space to be filled. Tail pieces, line finishings, initials, illuminating, monograms.

*Practical outlook—*

Sign, bulletin, and placard painting as a trade.

*Design—*

For the development of the sense of outline, line, form, and proportion.

Application in wood- and metal-work.

*Simple metal-work—*

Design applied in simple objects in copper, brass, and other soft metals, particularly fittings for wood workbox corners, hinges, escutcheons, catches, drawer and door bolts, plates, surface decorations, etc.

## WOODWORK

*Preliminary problems—*

Problems presenting systematic use of tools and general principles of construction, involved in simple projects of use and beauty, applying art principles of form and color, and correlating with metal-work, mechanical and free-hand drawing.

*Commercial problems—*

Problems of commercial value, such as appliances for school gardens, window boxes, bulletin boards, and frames for schoolrooms, etc., otherwise made at the repair-shop.

**Principles—**

Principles of geometry and trigonometry studied and applied in various wood-working projects.

**Business methods—**

Time card, expense, and checking system, measuring, estimating, costs, bills, letters, materials, contracts, etc., correlating with English, geography, history, and mathematics, in both first and second years.

**FIRST YEAR, GIRLS****HOUSEHOLD ARTS****Aim—**

The training of pupils in the subjects which pertain to life in the home.

**Cookery—**

Cooking of types of vegetables, cereals, the various cuts of meat, flour mixtures, instruction in the principles underlying the work, preparation and serving of meals, practice in writing menus, care of the kitchen and dining-room.

**Sanitation—**

Plumbing, cleaning of traps, care of the sink, refrigerator, and bathroom.

**Laundry—**

Washing of dishtowels and table linen.

**Sewing—**

Care and use of machines. Making of uniform for household science, sewing-bag, mending, hemming table linen, corset cover, shirtwaist suit.

**Art—**

Designs for table linen, wall paper, rugs, draperies, dishes, beauty in form of dishes and cooking utensils and fitness for use, lettering, title-pages of notebooks, illustrations for notebooks, suitable pictures for the home.

Lettering for marking articles made in sewing, textile designs, fitness of articles for their use, suitable designs for embroidery, pictures of beautiful costumes.

**Household accounts—**

Cost of food in the lessons, cost of meals which are prepared, cost per capita per day, cost of furnishings, textiles, clothing.

**Museum—**

Textiles and materials from which they are made, pictures of looms, spinning wheels.

**Class visits—**

Markets, stores, factories, and shops.

**Correlation—**

All of the work is correlated with English, geography, history, and mathematics, in both first and second years.

**SECOND YEAR, BOYS****FIRST TERM**

Work as outlined for the first year continued.

**SECOND AND THIRD TERMS**

Full time for industrial work (about eighteen three-quarter hour periods each week) may be devoted to specialization in one of the following subjects: mechanical drawing, printing, cabinet making, pattern-making, building construction.

**Class visits—**

After class talks and discussions, visits to drafting-rooms, buildings in the process of construction and finish, to cabinet shops, paint manufactories, printing-offices, pattern-shops, etc.

**SECOND YEAR, GIRLS****HOUSEHOLD ARTS****Cookery—**

Preservation of food: canning of peaches, pears, tomatoes, jelly, sterilization. Preparation of such combinations of food as could be used for a meal.

Soups, bread, salads, simple desserts, preparation and serving of meals, infant-feeding, invalid cookery. Practice in writing menus.

**Sanitation—**

Review of first-year work.

**Laundry—**

Hard and soft water, action of alkalies, making of soap, preparation of starch, removal of stains, washing and ironing of various textiles.

**Home nursing—**

Making a bed, care of sickroom, simple treatment of cuts and burns.

**Sewing—**

Making of drawers, nightgowns, dresses of wash materials. Emphasis is placed upon increase in speed.

**Art—**

Household decoration and furnishing. Colors and materials suitable for the various rooms and uses in a home. Study of the principles underlying artistic construction in dress. Study of historic examples of dress.

*Mechanical drawing—*

Working drawing for anything needed for the kitchen, such as table, drain board for sink, shelf or drawer for pantry, accurate measurements for windows for window fixtures, drawing to scale of windows.

*Household accounts—*

Cost of food, fuel, service, rent. Typical family budgets.

*Class visits—*

Markets and house-furnishing shops.

*Economic value—*

The use which the woman makes of money in the home is of equal importance to the acquiring of the money. "It is the present duty of the economist to magnify the office of the wealth expender, to accompany her to the very threshold of the home, that he may point out its woeful defects, its emptiness, caused not so much by lack of income as by lack of knowledge of how to spend wisely."

## ST. PAUL

The St. Paul Special Industrial Schools have been in operation since 1908. They are for boys exclusively and are located one in each geographic district of the city.

*Purpose.*—Quoting from Superintendent Heeter's report: "They are special schools for boys who cannot be expected to complete the regular grammar-school course." "Boys come from the fourth, fifth, sixth, and seventh grades." "No boy under fourteen years is admitted." "The elementary industrial school takes pupils that cannot be expected to complete the common schools and endeavors to give them a sort of finishing course before they go to work." Boys may prepare for certain courses in the high schools and a few have done so.

*Teachers.*—Two men teachers take charge of thirty boys—one teacher for the shop and the other for the academic schoolroom adjacent. These men are graduates of the normal schools of the state with special aptitudes for this work.

*Curriculum.*—The industrial work is largely wood-working, carried into cabinet making and elementary physics. The course of study is arranged to cover three years.

Each school consists of only three classes, with an average of about ten to the class, known as first-year, second-year, and third-year boys.

"Each day is divided into six periods and each class spends one period in supervised study, another in recitation, and another in the shop. As

indicated above, their studies are limited to reading, writing, spelling, and arithmetic. The reading lessons are almost entirely industrial, geographic, and historical in their character, and the reading period is frequently used as a language period. The arithmetic runs at times toward simple accounts and business forms and elementary bookkeeping. Occasionally an entire half-day is spent by the entire room of thirty boys under the direction of both men in an observational study of some trade or occupation. As a rule, arrangements are made in advance by the teachers with some blacksmith, carpenter, electrician, manufacturer, foreman, etc., and the boys are given every attention possible."

#### NEWARK

The history and general plans of the elementary vocational work in Newark are discussed by Superintendent Poland in his school report of 1909-10. Boys are sent to one building from different schools in the city. Girls are not provided for. "The school has attracted the dull boy, but it does not cater to him." The school is about two years old.

*Purpose.*—Dr. Poland states in his report: "There are two things which I hope to see accomplished a little later that may make it easier to retain these boys in school: (a) their superiority as apprentices over boys otherwise trained, and (b) their ability to advance more rapidly as apprentices and hence obtain higher remuneration because of the training received in this school. When it becomes known that this school offers to a certain class of boys advantages that cannot be had in the regular grades its career of greatest usefulness will have begun."

*Teachers.*—Men are in charge of the shopwork, selected because of successful trade experience supplemented by technical and teaching training. Women are in charge of the academic studies selected because of conspicuously successful experience with and because of their interest in this class of boys.

#### *Curriculum*—

##### FIRST YEAR

Shopwork . . . . .	825 minutes per week		
Drawing . . . . .	275	"	"
English subjects . . . . .	275	"	"
Arithmetic . . . . .	220	"	"
Ind. geography . . . . .	55	"	"

## SECOND AND THIRD YEARS

Shopwork .....	825 minutes per week			
Drawing.....	275	"	"	"
English subjects.....	275	"	"	"
Arithmetic.....	220	"	"	"
Science.....	55	"	"	"

Shopwork is given in the following order: Carpentry, metal-work, pattern-making, foundry practice, electrical wiring, printing, and electrical construction. Pupils who do not wish to take the electrical construction in the graduating class may specialize in any other line of shopwork.

The drawing does not correlate in detail with the shopwork but follows a sequence of its own. This method eliminates repetition and insures a steady advance.

The English work includes oral and written composition, spelling, and penmanship. It is directly correlated with the different branches of shopwork.

Arithmetic is treated from the shop side after the fundamentals have been thoroughly mastered.

Science work deals with the properties of matter, heat, light, sound, electricity, and mechanics.

A high standard of efficiency is maintained throughout all classes.

Product that has been completed is the property of the Board of Education.

The school places its graduates in positions suitable to their ability and inclinations. This feature of vocational guidance was successfully started last July, when seventeen out of twenty-one graduates were placed in positions. The remaining graduates entered high school or moved from the city.

Two lines of industrial work call for special mention, the pattern-making and elementary tool-making. A foundry room in the basement gives an opportunity to apply the pattern in the process of casting. In the toolroom two forges make it possible to give practice in tempering and welding. The tools are made of sheet iron by the use of the regular iron-working tools of this trade.

The value of industrial training for the teachers of the industrial activities was evident throughout this school.

## SUMMARIES

All the industrial activities found in the elementary industrial schools here considered are tabulated below. The letters opposite each activity indicate the cities in which they are found: B., Boston; C., Cleveland; I., Indianapolis; N., Newark; S., St. Paul.

## ACTIVITIES

Boys	Girls
<b>1. WOOD-WORKING</b>	<b>1. SEWING</b>
(B.C.I.N.S.) Carpentry	Plain (B.C.I.)
(B.C.I.N.S.) Joinery	Dressmaking (B.C.I.)
(B.N.) Wood-turning	Art needle-work (B.C.I.)
(N.) Pattern-making	
(C.) Cabinet-making	
(C.N.) Building construction	
(B.C.I.) Repair-work	
<b>2. METAL-WORKING</b>	<b>2. COOKING AND HOUSEKEEPING</b>
(B.C.I.) Art metal	(B.C.I.)
(N.) Tool-making	
<b>3. PRINTING</b>	<b>3. WEAVING</b>
(B.C.I.N.)	(I.)
<b>4. ELECTRICAL WORK</b>	<b>4. MECHANICAL DRAWING</b>
(B.N.)	(B.C.I.)
<b>5. CLAYWORK</b>	<b>5. SPECIAL ART TRAINING</b>
(B.)	(I.)
<b>6. BOOK-MAKING</b>	
(I.)	
<b>7. MECHANICAL DRAWING</b>	
(B.C.I.N.S.)	
<b>8. SPECIAL ART TRAINING</b>	
(I.)	

*Agreement.*—In some particulars all the schools under consideration are in agreement. One point of agreement is in the “call” for the industrial activity, or to put it differently, in the schoolman’s motive for introducing industrial activities into the elementary-school grades. The most fundamental motive appears to lie in the unmet need of the

boy and girl who does not or cannot find education and culture (assuming that these two words are not synonymous) through and by books alone.

A second point of agreement is in the choice of material for educational purposes. The uniform reasoning seems to have been this: "If a child's mind does not react by dealing with the abstract and the symbol—let us try the reality." With the disappointing experiences in manual training, school cooking, and schoolroom nature-study fresh in mind and influenced by the growing demands of the industrial world, it was natural that *industrial activities* should loom large in the minds of all who were studying the unsuccessful school child.

A third point of agreement is the introduction of a secondary aim in elementary training. While all agree that the primary purpose of all elementary training should be general education, it is believed that a secondary aim of vocational preparation is as legitimate as a secondary aim of high-school preparation, and that the practical recognition of this secondary aim need not interfere with the fullest realization of the primary aim.

A fourth point of agreement lies in the conviction that the book is indispensable in any form of elementary training, that at least half-time should be given to the book, but that the book and the activity should be so related as to vitalize each other.

A fifth point of agreement relates to method and to quality of industrial product. It is agreed that both should be those of the trades of which the activity is a part. School practice should be "shop practice" as far as is practicable. However, there appears to be a universal conviction that in this elementary field the educational values must always dominate rather than the industrial values.

A sixth point of agreement is that the elementary industrial courses must be so planned that a boy or girl completing them may at his option enter advanced courses of study or enter industrial life.

A seventh point of agreement is that these children need educational or vocational guidance when they pass out from the elementary course and that they need opportunities for continued education if they enter the industries.

The beginnings of this departure in school practice were alike in all cases. Some conveniently located building was converted into a special school to which boys and in some cases girls also were invited from the



entire city. At first the overaged, the mentally slow, formed the school membership. The quality of pupils is, however, improving.

The courses of work are planned to cover two or three years, the last two years of the grammar grades, although overaged, overgrown, and unsuccessful children are taken rather freely from the sixth and in some instances from the fifth grade.

In general the industrial activities selected are the same in all schools, namely, those most fundamental in the world's industrial life. There is, however, at each school an experimental attitude. The North Bennett Street Industrial School in Boston, being primarily an "experimental station," has tried out a larger number of activities than have other schools. The work in Newark in pattern-making and tool-making are suggestive of this experimental attitude.

*Differences.*—There are several points at which there is not exact agreement.

There is a difference in the degree of vocational emphasis. This emphasis appears to be greater in Newark and least in Indianapolis. Indianapolis and the North Bennett Street Industrial School seem to be more at one at this point, while Cleveland and St. Paul are more closely allied with Newark. These three schools are separate schools to which selected pupils are sent, all boys, except in case of Cleveland. In Indianapolis six regular schools are following the industrial plan, boys and girls, in all about seven hundred children.

*Cost.*—The cost of this plan of work will of necessity be greater than that of the sedentary, exclusively book plan. It would appear also that the cost will increase with the vocational emphasis, for this emphasis carries with it a larger variety of activities, a more varied and complete mechanical equipment, and more highly trained and more thoroughly experienced teachers.

#### DEDUCTIONS

1. The elementary industrial plan of education requires for its success a school building constructed for it. A conventional schoolhouse will not do. Each activity should have its room or rooms built for that particular activity.

2. "When a manual activity becomes merely manual labor it ceases to be an educating activity. At this point a labor-saving tool or machine must be introduced." This statement was made to the writer a year

ago by Mr. Robert Himelick who is in charge of one of the industrial centers in Indianapolis. If it is, as it appears to be, a principle inherent in this plan of education it will determine the amount and variety of machinery that must be made a part of shop equipment.

3. "A boy between the ages of fourteen years and eighteen years is potentially at his best as a mechanic. That is, during these years he can with a minimum amount of training turn out a finer mechanical product than he can in later life." Superintendent Poland has made this generalization. He is the first to state it so far as the writer knows. It exerts an important influence in standardizing the work of his school. If this shall be found to be a principle, it cannot but profoundly influence all educational practice in the upper elementary and lower high-school grades.

#### CONCLUSIONS

The problems involved in educating girls by the elementary industrial plan are not as yet either so successfully worked out or as fully worked out as are those for boys.

The least successful part of the plan is the interrelation of the book and the activity. In no place, so far as the writer knows, is this interrelation much more than an ambition. It is not yet entirely clear how far this interrelation may be carried with profit.

It is becoming evident that the influence of the industrial plan of elementary education is destined to be considerable on both "manual training" in general and on all elementary education.

This form of education will not eliminate all the "failures" from the schools, but it is diminishing their number. For many children school has been a place where they have been trained to bear defeat unresistingly. For a growing number of them the elementary industrial school has become a place where they are taught how to attain success.

### **III. THE SEPARATE OR INDEPENDENT INDUSTRIAL SCHOOL**

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**M. W. MURRAY**

**Director of Industrial Education, Newton, Mass.**

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The development of the independent industrial school is due to a broadening educational policy which recognizes the right of every pupil to the kind of training best suited to his individual needs. We have come to realize that a scheme of education which is intended primarily for the select few who enter the professions will not educate effectively all children, even if they were compelled to remain in school. These facts were forcibly brought to the attention of thinking people by the report of the Massachusetts Commission on Industrial Education published in 1906. The report showed clearly that the schools are not educating a large percentage of their young people, who are entering industrial life poorly equipped for their struggle. To add to their difficulties, industrial conditions are now so changed that it is no longer possible for them to receive the training necessary for their development and advancement. These two conditions form a common problem for which the industrial school must furnish the solution.

It is the intent of the Massachusetts law to promote by state aid the development of a new type of school which in fitting for wage-earning occupations shall be unhampered by the practices and methods of the regular public schools. To encourage the establishment of these schools, the state enters into an equal partnership with the local community and pays one-half of the running expenses of the school if its plant, teachers, courses of study, and methods of instruction meet with the approval of the State Board of Education. The law makes it possible for these schools to have their own governing boards, independent of the school committee, but co-operating with it. This, however, is not necessary, and where the city government desires, the school committee may be the governing board of the state-aided industrial school. To the end that these schools may have an opportunity to work out their own methods according to new ideals, they are separate from the regular schools, but

it is intended that they shall, so far as possible, work together. The same general problems are confronting all of the industrial schools which have been organized during the last three years, but the schools differ to such an extent that a general description is impossible; hence this paper will deal mainly with the Newton State-aided Day Industrial School for Boys.

*Supervision and administration.*—A feeling that all educational activities should be under one general control has led to the organization of a new Board of Education in Massachusetts, to take the place of both the Commission on Industrial Education and the old State Board of Education. This new board has one commissioner, with two deputies, one of whom has charge of all the industrial work in the state. In a like manner, the industrial schools are in charge of a specialist under the Superintendent of Schools. In the case of Rochester, N.Y., and Newton, Mass., the same person has charge of all the manual, industrial, and technical training throughout the public-school system, making it possible for the work of one school to supplement that of another. In four Massachusetts cities the industrial schools are operated under separate boards of trustees but to all intents and purposes they are a part of the school system and dependent upon it for their pupils. It seems probable that the new schools which are established will be directed by the school committees, with advisory boards composed of practical men, whose duty it shall be to act in an advisory capacity as to the courses of study, equipment of the school, and the guidance of pupils in selecting a vocation.

The independent industrial schools, as now conducted under the Massachusetts Board of Education, include day schools for boys and girls over fourteen years of age, evening trade-extension courses for men and women over seventeen years of age who are engaged in similar lines of work during the day, and part-time courses for those of both sexes between the ages of fourteen and twenty-five years who are employed.

*Need of these schools in the public-school system.*—The need of a school of this type and the exact work which it should do vary with the industrial conditions of the city and with the educational opportunities already offered by existing schools. A school system which deals with the pupils as individuals and offers strong courses in manual training, drawing, cooking, and sewing will reach and hold more children than one

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which does not offer these courses.<sup>1</sup> It is also true that the addition of commercial and manual-training courses, and the establishment of technical high schools, increase the holding power of the school system, yet even where these exist there is still a large group of boys and girls which the industrial school can reach.

Chart I shows graphically the present place of the industrial school in the Newton school system, which before the development shown on the right, held a larger number of pupils through the high school than any other city in the country. This development includes broad courses in manual training, cooking, and sewing, prevocational training in the grades, and the establishment of a \$500,000 Technical High School with a special industrial course. If Newton, a residential city, with comparatively little manufacturing, needs such a school, the need in most other places must be indeed great.

*Children who are reached.*—These state-aided industrial schools receive pupils as soon as they can obtain age and schooling certificates,

TABLE I  
ENROLLMENT OF THE NEWTON SCHOOL BY GRADES, SHOWING NUMBER OF PUPILS  
COMING FROM EACH GRADE AND THE PERCENTAGE OF LOSS  
ACCORDING TO GRADE

Grade	Total Number Received	Dropped out	Percentage of Loss
Fifth or below.....	9	4	44.4
Sixth.....	21	7	33.3
Seventh.....	25	8	32
Eighth.....	20	7	35
Ungraded.....	6	1	16.6
Above eighth.....	2	..	....
Total.....	83	27	32.5

NOTE.—Two pupils coming from the eighth grade went from the Industrial School to the Technical High School. This means a loss to the school system of only five boys from that grade, or 25 per cent, and a total loss of only 25, or 30.1 per cent.

In the Massachusetts schools as a whole, the majority of the pupils in the day industrial schools have completed the grammar-school course before entrance.

which in Massachusetts is at fourteen years of age, if they show that they are otherwise qualified to profit by the work which is offered. As shown by Table I, the majority of the pupils in the Newton School

<sup>1</sup> Based on studies made by the writer during eight years' work in Springfield, Mass., with groups of boys who had four to six hours of manual training per week.

come from the sixth, seventh, and eighth grades of the grammar schools. It has been clearly shown that these children could not be persuaded to continue in the regular schools, but they elect to attend a school in which practical training is given. Considering the educational advantages of Newton, and the character of the city, the number in attendance in its industrial school (62) is larger in proportion to the size of the city than that of any other school, yet there are about as many more in both the elementary and high schools who would be better served by the industrial-school training.

*Aim of the school.*—This school aims first to discover what its pupils are capable of doing and what line of trade work, if any, they are fitted to pursue. Where several lines of shop-training are offered, pupils are given a chance to try each in turn until it is discovered what they are best fitted to do. It has been found that most boys have formed a pretty clear idea as to what they wish to do, and very little changing is necessary. Our experience with these schools seems to show that the period from fourteen to sixteen, or the first two years of the industrial school, is the time for vocational guidance through very thoroughgoing trade instruction which will give a boy favorable entrance to a trade if he leaves the school at sixteen years of age. The aim is to offer a four-year course, three years in the school and the fourth in the trade, under the supervision of the school. A course of this kind will give the boy entrance to the trade as an apprentice of advanced standing at a time in his training when he is beginning to specialize.

*Courses of study and methods of teaching.*—In the Newton Independent Industrial School the shopwork includes courses in carpentry, cabinet making, pattern-making, printing, machine-shop practice, and electrical work. The shopwork forms a core for the teaching of drawing, English, mathematics, science, history, and civics and makes it possible for pupils to see the real use of much of the bookwork.<sup>1</sup>

*Shopwork.*—The shopwork is all conducted in the way in which similar work in commercial life would be carried on. Everything is real work and nothing is made for the scrap heap. In the wood-working shop, furniture and equipment for the school are made, such as drawing-tables, chairs, benches, teachers' desks, bookcases, cabinets, etc. Work in pattern-making is made practical by having the boys make patterns for the machines and tools which are being constructed in the machine-

<sup>1</sup> See *Bulletin No. 3* of the Massachusetts State Board of Education.



shops. As a part of the electrical course, the boys set up motors and other pieces of apparatus, run wires for these, and do many other kinds of electrical work. In Rochester, where most successful electrical work is being done, the boys have not only wired their own building, but are doing similar work for all the school buildings in the city. In the Worcester Trade School much of the shop practice is on commercial work which is sent in and paid for by the manufacturers of the city, while in Beverly the school shop is located in the plant of the United Shoe Machinery Company, and does productive work for it. Rochester, Newton, and other schools have thus far found ample opportunity to dispose of their products within the school system. The Newton school is just completing an order for six wood-turning lathes with friction clutches to be used as a part of the Technical High School equipment. As a part of the printing course in the Newton school a paper is published which is edited and printed by the boys. This department has done practically all the printing for the school department, with the exception of the annual report. A strong course in drawing, which is directly related to the work, is a prominent feature. In the case of such trades as machine-work, pattern-making, wood-working, and electrical work the drawing is mainly mechanical, with free-hand shop sketches, but for the boys who are specializing in printing, the work includes free-hand drawing, lettering, design, color, harmony, etc.

*English.*—The aim of the work in English is to enable the pupil to express himself clearly, adequately, and in correct English both orally and in writing; to develop his vocabulary of industrial terms; to develop the ability to consult sources of information along mechanical lines, and to organize working facts into convenient and useful form, to acquaint him with the rapidly developing literature of the modern industrial world; and to cultivate the habit of reading good books. The teaching of this, as of all other related academic work, is based on the theory that the boy will retain and make use of only that part which he is able to appreciate and see a real need for. This is done through having the boys explain in written and oral language their work in the shops, and their understanding of shop orders. Excellent practice in letter-writing is obtained through making requests for catalogues, answering advertisements, writing orders for goods, and requests for more complete information as to shop orders which are sent in from outside the school. An interest in books is developed through a study

of trade papers and magazines bearing upon the subject on which he is working. In this way an interest in the public library can be developed, the great majority of boys in the school patronizing it first through a selected list of books loaned to the school by the library, and later going to the library itself.

The following is a report on books loaned to the Newton Independent Industrial School by the Newton Free Library, showing the number of boys who read each book and reported on the same:

Boys' Life of Abraham Lincoln . . . . .	7
Biography of a Silver Fox . . . . .	8
Control of Body and Mind . . . . .	3
Dorymates . . . . .	7
Elementary Turning . . . . .	2
Fighting the Fire . . . . .	10
Harper's Electricity for Boys . . . . .	7
Harper's Machinery Book . . . . .	3
Heroes of American Discovery . . . . .	4
Heroes of the Storm . . . . .	8
Horse Fair . . . . .	8
Iron Star . . . . .	4
Making of an American . . . . .	8
New Boy . . . . .	9
Prince Dusty . . . . .	8
Son of Light Horse Harry . . . . .	4
Three Scouts . . . . .	12
The Training of Wild Animals . . . . .	12
The Story of King Arthur . . . . .	9
Uncle Sam's Business . . . . .	3
Washington and His Country . . . . .	3
Winning His Way to West Point . . . . .	10
Working with the Hands . . . . .	5
Harding at St. Timothy's . . . . .	6
Harper's Out-door Book for Boys . . . . .	3
Jack of All Trades . . . . .	6
Leather Working . . . . .	10
Life of Theodore Roosevelt . . . . .	4
Lost in a Jungle . . . . .	5
Panther Stories . . . . .	8
Real Electric Toy Maker . . . . .	3
Story of an American Soldier . . . . .	6

Textiles (Dooley) . . . . .	2
The Sciences (Holden) . . . . .	1
The Young Rangers . . . . .	16
Trapper Jim . . . . .	5
True Story of Benjamin Franklin . . . . .	3
Two Young Inventors . . . . .	9
Washington's Young Aids . . . . .	7
Weatherby's Inning . . . . .	8
Young Ice Whalers . . . . .	8
Young Trailers . . . . .	12

**Mathematics.**—Such a subject as machine-shop practice, through its shop calculations and shop costs, offers an opportunity to teach, with an absolute application to what the boys are doing, all the practical mathematics which the average man will ever need to know or use, but when we come to such a subject as printing, the problem of applied mathematics is more difficult. The following is offered from the printing course as to the way in which this is handled: “To make an accurate estimate on a printing job, all the costs which enter into it must be known. Among these the following must be taken into consideration: Cost of stock, including type, paper, ink; composition; plates; press-work; stonework; make-up; binding, etc. Time-slips showing the number of hours devoted to each job must be kept. The general expense of an office, including rent, interest on the investment, cost of light, heat, and power, together with salaries and an allowance for deterioration, must be considered in determining the price to be charged for a given piece of work. Ample first-hand information is easily accessible, and the actual business of the office is the basis for the correspondence and mathematics.” The other academic subjects are similarly treated.

**Teachers.**—The most difficult problem in the industrial schools is to find teachers who are capable of carrying out the program outlined in part above. The teachers who are dealing with trade subjects are first thorough mechanics in their different lines, and it has been the aim to secure men who correspond with first-class foremen or superintendents in a commercial establishment. In addition to this, the academic training which will enable them to teach the related work is usually required. Such talent comes high, but if we are going to have real efficiency in either an industrial or a regular school, we must pay for the same kind of services and ability that a commercial establishment

demands; in other words, the industrial school should not have a teacher who is not capable of making an equal amount in the outside world. In some cases it is actually necessary to pay them more than they are receiving in commercial work to attract such people to teaching. Only in this way can we get teachers who have a body of knowledge worth drawing upon.

*Building and equipment.*—On account of the expense of the building and its equipment, starting these schools has been difficult, and it has been the almost universal practice to take buildings which have been discarded for regular school purposes and adapt them to the needs of the industrial school. There is a widespread feeling that a school plant which is not good enough for the regular schools will answer all the purposes of an industrial school, and that it can best be housed in a shop. Where old school buildings have been taken, there has been a feeling on the part of parents that the industrial schools are not as good as the regular public schools, and this has probably kept quite a large number from sending their children. If we are going to make these schools a success, we must give them not only a superior class of teachers, but adequate housing and equipment. It is often said that a shop can be used for this purpose, which may well be the case, but if a shop is used it should not be an old, broken-down commercial plant. This will mean the erection of buildings in which any of us ought to be glad to have our sons and daughters work; in fact, plants of the type of the Cincinnati Milling Machine Co. and others which might be mentioned are far in advance of the average school building as to light, ventilation, convenience, etc.

*Does the industrial school successfully deal with a group which is not being reached by the other public schools?*—The question may fairly be asked: Are these schools dealing successfully with a group which is not being reached by the other schools? It is the opinion of the principals and teachers of the elementary schools in Newton that these pupils would not be in any school if they were not attending the industrial school: in fact, in almost every case the boy was about to leave the elementary or high school before he entered the industrial school, and in some cases actually had left. This means that the school is reaching only those who were hopelessly lost to the other schools. It is not doing all that it should until it reaches out into the grades and takes boys a year or two before the point of leaving and entering an industry.

TABLE II

## STATISTICAL SUMMARY OF NEWTON INDEPENDENT INDUSTRIAL SCHOOL

Total enrollment to date . . . . .	83	
Present number in attendance . . . . .	58	
Highest number in attendance . . . . .	59	
Highest average attendance per month	51.8	
(April, 1911)		
Lowest average attendance per month	26.5	
(June, 1910)		
Enrollment for school year 1909-10 . .	48	
Enrollment for school year 1910-11 . .	62	
Dropped out during 1909-10 . . . . .	14=29	per cent of yearly enrollment
Dropped out during 1910-11 . . . . .	7=11.2	per cent of yearly enrollment
Total number dropped out to date . . .	27=32.5	per cent of total enrollment

Two of this number entered the Technical High School, making the percentage of loss to the school system 30.4 instead of 32.5.

Delinquent . . . . .	10
Sent to reform school . . . . .	1
Compelled to go to work . . . . .	7
Went to work from choice . . . . .	3
Entered high school . . . . .	2
Expelled for discipline . . . . .	2
Father disapproved of industrial school . . . . .	1
Mother disapproved of industrial school . . . . .	1

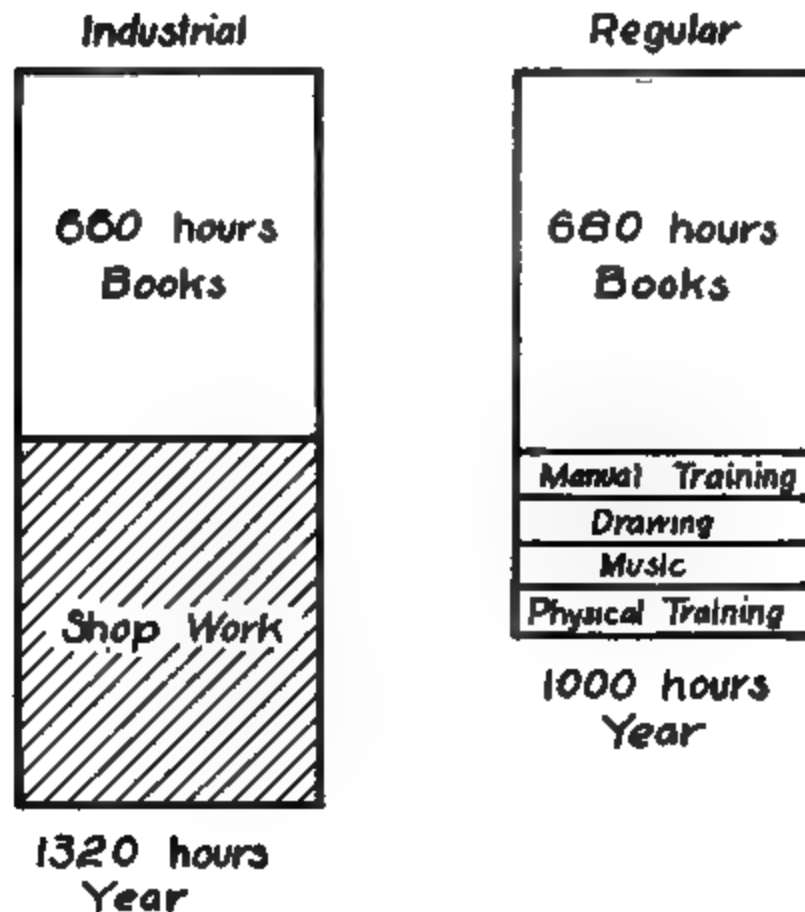
Table I shows the grades from which these pupils have come, the number and percentage of loss. This percentage may seem large, but when we consider that these pupils would not have been in any school, and that during the comparatively short time they were in the industrial school they were fitted for better work than they otherwise would have been, it would seem that it has been worth while. Table II gives a statistical summary to June 1, 1911. This table shows that the largest number who dropped out are those classed under the head of "Delinquent," making a total of ten. The experience with this group seems to show that to deal successfully with boys of the type who are not being reached by the public schools they should be taken when they are about fourteen years old, preferably younger, before bad habits have become fixed. The great majority of the number classed under "Delinquent" were boys from sixteen to nineteen years old, who had

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ivated habits of idleness, profanity, smoking, etc. It was found that school was not, at that particular stage in its organization, able to | successfully with this group.

*How are pupils held in school?*—It is not a difficult problem in the astrial school to hold boys through interest in their work and the elopment of a sense of responsibility, by having them do work which

CHART II  
SCHOOL YEAR



ns to them worth while, but the difficult problem is to hold them in school after they feel that they have learned enough of a certain le to enable them to get a job which seems to offer good financial rns at that time. This is overcome through (1) an understanding 1 employers that they will not take boys from the industrial school hout a written statement from the instructor in charge of the depart- it, or the principal of the school, that such a boy is fitted for the work that it is necessary for him to do it; (2) by personal conferences with boys and their parents, making them see that completion of the rse will insure an all-round training, which in the end, will enable

the boy to earn more money. It will be noted in Table II that next to the delinquent class the largest is made up of those who are compelled to go to work. These boys did not receive their certificates until the principal of the school had investigated the case very carefully and used all possible arguments with the parents to keep the boys in school. In most of the cases—probably 90 per cent—it was the opinion of the principal that it was absolute financial necessity that compelled these people to go to work.

*What does the boy know when he finishes the course?*—On the trade side the student has at least the equivalent of two years of apprenticeship, and an all-round experience and opportunity to work on things which a boy of his age could not possibly get working under commercial conditions. In addition to this, he receives a training on the academic side which it is impossible to give in the regular schools. This training, in almost all cases, is the equivalent of at least the last two years in the grammar school and the first two in the high school. The question may well be asked how this can be done. It would appear that if a pupil gives half his school time to shop work he will not be able to compete with a pupil who is giving all his time to the academic subjects. The answer to this is that the industrial school has a longer day by one hour and a longer year by four weeks, making a greater length of session by at least 320 hours a year, or a total of 1,320 hours. Against this we have a total of not over 1,000 hours in the regular schools, and subtracting from this the time for such activities as manual training, drawing, music, physical training, etc., we have left a total of 680 hours. This shows that in actual hours the industrial school devotes practically as many to book work as the regular elementary schools. In addition to this, the teaching is done in such a way that the boy sees why he is doing everything which he does, and the reason why he should get it right. The class unit is made up of not more than fifteen and the instructors are able to give pupils their individual attention. The main difference between the methods used in the industrial school and those of the average elementary and high school, is that in the latter schools a large amount of the work is prepared at home, and the teacher spends time in having the pupils show her, through recitations, what they have not learned and do not know, while in the industrial school the teacher spends his time in directing the individual study of each pupil and teaching him that which he does not know, and could not learn alone.

*Can the regular schools profit by the experience of the industrial schools?*—While the pupils in most industrial schools are those whom the public schools have failed absolutely to reach, it should be understood that the industrial schools are not intended primarily for this class. It is contended that probably 75 per cent of all pupils in the elementary schools could be more successfully dealt with through the methods of the industrial schools than through the methods which are being used at the present time. At the end of such a course, these students would have not only a good groundwork for a trade, but they would have received more effective academic instruction and the trade experience would be a valuable asset whether they were going to be teachers, lawyers, doctors, or ministers.



## IV.4. THE SEPARATE TECHNICAL HIGH SCHOOL

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JAMES F. BARKER

Principal of the East Technical High School, Cleveland, Ohio

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With the growth of industries and commerce there has come a demand for training along specialized lines not originally included in our scheme of public high schools. It has been in response to these needs that the remarkable development taking place in secondary education has had its chief inspiration. This has been particularly the case in the larger cities where changing conditions have been greatest and where the lack of persons especially trained to meet the needs of manufacturing and distributing has been most keenly felt. Demand for special training has, furthermore, come from within the ranks of the workers as well as from those directing these activities. A few years ago public secondary education had not been thought of, and the few private academies were concerned only with preparing their pupils for the colleges. This has been, in a measure, the heritage of our secondary schools, and it is only recently that the proposal to train boys in the high school for occupations, as well as for the professions, has met with approval. It is doubtful whether this would have been possible had not the way been prepared by the previous introduction of handwork or manual training. This study made its entrance only upon the earnest representation of its adherents that it was solely for cultural purposes and not with any utilitarian end in view. The usefulness as well as the educational value of handicraft soon became apparent, however, and we are now on the threshold of the greatest development along the lines of industrial and vocational education that has yet taken place.

*Meaning of technical high school.*—In New York, Chicago, San Francisco, Cleveland, and a few other large cities, there have recently been established special schools whose aims have so differentiated them from other schools as to require a new designation. The National Education Association, in order to get a clear view of what constituted schools of this nature, appointed a committee to consider and report upon a definition of a technical high school. It is this definition, subsequently

reported, that is taken as a basis in this paper. The definition is too comprehensive, however, to be included here.

At the outset it is necessary to exclude the so-called academic high schools, which merely have partial manual-training departments.

Nor would it seem proper to include under the head of the separate technical high schools those which boast of complete manual-training departments, but whose courses still are dominated by the universities and the colleges. Very few, even of the schools terming themselves technical high schools, have been able to divorce themselves from a curriculum which has for its fundamentals those studies usually prescribed in the literary schools and which devote less than 25 per cent of the time to handwork. A glance at the course of study of the manual-training high schools shows a course including English, mathematics, a language (either classical or modern), some history and science, plus shopwork and drawing unrelated to the rest of the course. In most of these schools even technical subjects have very little interdependence one with the other. Such schools should not be included under the head of separate technical high schools. Those of the above type being then eliminated, the schools that could be included would be only those which have a course of study where English, mathematics, science, shopwork, and drawing are the fundamentals and where the foreign languages and history play less important parts. Of schools of this nature there are comparatively few in the United States. Among the best examples are the related schools in San Francisco, namely, the California School of Mechanical Arts and the Wilmerding School of Industrial Arts for Boys. Another school of this nature is the Technical High School of Cleveland. Certain courses in the Technical High School in Chicago and the Stuyvesant High School in New York would entitle these institutions also to representation.

In some of these courses the aim seems to have been not so much to meet college requirements as to fit boys and girls to go out into industrial life. In this connection the Williamson Free School of Trades, in Pennsylvania, might also be included, as the academic work of the school is at least of high-school grade and the technical courses are scarcely to be approached by those of any of the public technical high schools.

Without attempting to analyze what is included under the various headings, one would find that a comparison of the courses of study is not without interest.

SAMPLE COURSES OF STUDY

THE CALIFORNIA SCHOOL OF MECHANICAL ARTS

SYNOPSIS OF PRELIMINARY COURSES

FIRST YEAR

BOYS AND GIRLS

	No. Weeks	Periods per Week
English.....	40	5
Mathematics (algebra).....	40	5
Science (physics).....	40	5
History (ancient and mediaeval).....	40	5

BOYS

General woodwork, molding, and pattern-making.....	40	10
Free-hand and mechanical drawing.....	40	5

GIRLS

Sewing.....	40	7½
Free-hand and mechanical drawing.....	40	5

SECOND YEAR

BOYS AND GIRLS

English.....	40	5
Mathematics (geometry).....	40	5
Science (chemistry).....	40	5
History (modern European and American).....	40	2½

BOYS

Forgework and molding .....	40	10
Free-hand and mechanical drawing.....	40	7½
Modeling or wood-carving.....	..	..

GIRLS

Dressmaking and millinery.....	40	10
Free-hand and mechanical drawing.....	40	5
Modeling or wood-carving.....	..	..

THIRD YEAR

BOYS

Mathematics (logarithms and trigonometry).....	10	5
Science (radiant energy).....	10	5
Machine shop.....	20 to 40	10

GIRLS		
	No. Weeks	Periods per Week
Science (radiant energy).....	10	5
German (elective).....	40	5
Cookery.....	40	10
Household art and science, chemistry of cooking.....	40	5
Modeling or wood-carving.....	..	..

The preliminary course serves as a foundation for the different trades and technical courses. This part of the curriculum is essentially the same as the course given in the so-called manual-training high schools. It is different for boys and girls as regards toolwork and domestic branches, but otherwise it is the same for all students, and is required of all. It divides its time about equally between academic and industrial branches.

The academic branches include English, mathematics, science, and history. The period of fifty minutes per day for two years is devoted to each of these subjects with the exception of history, which is given on alternate days.

Instruction in English includes word-study, grammar, and rhetoric, practice in written and oral expression, and a study of literature through English classics, covering the ground designated as Subject One of the requirements for admission to the University of California.

The mathematical instruction includes elementary algebra, plane and solids of solid and spherical geometry, and plane trigonometry.

The science work consists of elementary physics during the first year, and chemistry during the second year. Various courses in applied science are given throughout the third and fourth years.

#### TRADES AND TECHNICAL COURSES

The school has facilities for teaching the following trades and technical courses, from which each student is allowed to make a selection at the beginning of his third year.

- |                          |  |
|--------------------------|--|
| 1. Pattern-making        | 8. Domestic science                          |
| 2. Forgework             | 9. Dressmaking                               |
| 3. Molding               | 10. Millinery                                |
| 4. Machine-shop practice | 11. Preparatory for technical college course |
| 5. Machine drawing       | 12. Polytechnic course                       |
| 6. Industrial chemistry  |  |
| 7. Industrial art        |  |

Through these courses the school aims to give each student a thorough knowledge of technique of some one industrial pursuit, from which he may earn his living. It offers, however, something more than the mere equivalent of a workshop apprenticeship. Besides the broad and thorough training

afforded by the combined academic and industrial branches of the preliminary course, there is the additional advantage that the shop instruction throughout is based upon work that is selected, as far as possible, for the benefit of the student, and not for the profit of his employer.

STUYVESANT HIGH SCHOOL, NEW YORK CITY

INDUSTRIAL COURSE

The industrial course of study has been prepared for boys who wish to go directly from high school to employment in some trade or other remunerative occupation.

FIRST YEAR

	Periods
English.....	5
Algebra.....	5
Free-hand drawing.....	2
Mechanical drawing.....	4
Joinery and cabinet-making.....	10
Music.....	1
Physical training, including physiology and hygiene.....	2
	<hr/>
	29

SECOND YEAR

English.....	3
Plane geometry.....	4
Chemistry.....	5
Free-hand drawing.....	2
Mechanical drawing.....	4
Wood-turning, pattern-making, and foundry.....	10
Physical training.....	2
	<hr/>
	30

THIRD YEAR

English.....	3
Plane geometry and trigonometry.....	3
Physics.....	5
Modern history.....	3
Mechanical and architectural drawing.....	4
Forging and machine-shop practice.....	10
Physical training.....	2
	<hr/>
	30

## FOURTH YEAR

	Periods
English .....	3
Shop mathematics .....	3
American history and civics .....	4
Advanced chemistry or economics or industrial and commercial law or applied mechanics .....	..
Steam and electricity .....	4
Mechanical or architectural drawing .....	4
Special shop or laboratory practice in one of the following electives: .....	10
1. Building construction (carpentry, sanitation, including heating and ventilating, electrical wiring and installation).	
2. Advanced forging and tool-making.	
3. Advanced pattern-making and foundry practice.	
4. Advanced machine-shop practice.	
5. Industrial chemistry, lectures and laboratory practice.	
Physical training .....	2
	<hr/> 30

The above course of study has been planned especially for boys who wish to go directly from high school to positions in machine shops or other works, in building construction, in electric-light and power plants, in chemical departments of manufacturing or packing establishments, in commercial industries requiring technical knowledge and skill, or in the various departments of the city government.

## CHICAGO TECHNICAL HIGH SCHOOLS

## SPECIAL INDUSTRIAL COURSES

The first two years in all the courses will be devoted to preliminary work in the fundamentals, as shown in the following outline.

FIRST YEAR		
	Weeks	Periods
English .....	40	5
Algebra .....	40	5
Physiology .....	10	5
Physiography or bookkeeping .....	30	6
Mechanical drawing .....	40	5
Woodwork .....	40	9
Free-hand drawing .....	40	1
Gymnasium .....	40	1
SECOND YEAR		
English .....	40	5
Plane geometry .....	40	5
Elementary physics or free-hand drawing .....	40	6

	<b>Weeks</b>	<b>Periods</b>
<b>Mechanical drawing</b> .....	<b>40</b>	<b>5</b>
<b>Blacksmithing</b> .....	<b>20</b>	<b>10</b>
<b>Foundry and pattern-making</b> .....	<b>20</b>	<b>10</b>
<b>Gymnasium</b> .....	<b>40</b>	<b>1</b>

At the beginning of the third year pupils will be given an opportunity to elect one of the following courses to be pursued during the third and fourth years:

**COURSE IN MECHANICAL CONSTRUCTION AND ENGINEERING PRINCIPLES**

**THIRD YEAR**

	<b>Weeks</b>	<b>Periods</b>
<b>English</b> .....	<b>40</b>	<b>3</b>
<b>Solid geometry</b> .....	<b>20</b>	<b>5</b>
<b>Advanced algebra</b> .....	<b>20</b>	<b>5</b>
<b>Advanced physics</b> .....	<b>40</b>	<b>6</b>
<b>Industrial history</b> .....	<b>40</b>	<b>2</b>
<b>Machine-shop practice</b> .....	<b>40</b>	<b>15</b>
<b>Machine and free-hand drawing</b> .....	<b>40</b>	<b>5</b>
<b>Gymnasium</b> .....	<b>40</b>	<b>1</b>

**FOURTH YEAR**

<b>English</b> .....	<b>40</b>	<b>3</b>
<b>American history or civil government</b> .....	<b>40</b>	<b>2</b>
<b>Trigonometry</b> .....	<b>20</b>	<b>5</b>
<b>Chemistry</b> .....	<b>40</b>	<b>6</b>
<b>Manufacturing</b> .....	<b>20</b>	<b>15</b>
<b>Mechanical engineering principles</b> .....	<b>20</b>	<b>20</b>
<b>Machine and free-hand drawing</b> .....	<b>40</b>	<b>5</b>
<b>Gymnasium</b> .....	<b>40</b>	<b>1</b>

**COURSE IN ELECTRICAL CONSTRUCTION AND ENGINEERING PRINCIPLES**

**THIRD YEAR**

<b>English</b> .....	<b>40</b>	<b>3</b>
<b>Solid geometry</b> .....	<b>20</b>	<b>5</b>
<b>Advanced algebra</b> .....	<b>20</b>	<b>5</b>
<b>Advanced physics</b> .....	<b>40</b>	<b>6</b>
<b>Industrial history</b> .....	<b>40</b>	<b>2</b>
<b>Machine-shop practice</b> .....	<b>20</b>	<b>15</b>
<b>Electrical construction</b> .....	<b>20</b>	<b>15</b>
<b>Machine and free-hand drawing</b> .....	<b>40</b>	<b>5</b>
<b>Gymnasium</b> .....	<b>40</b>	<b>1</b>

FOURTH YEAR		
	Weeks	Periods
English.....	40	3
American history and civil government.....	40	2
Trigonometry.....	20	5
Chemistry.....	40	6
Electrical construction.....	20	15
Electrical engineering principles.....	20	20
Machine and free-hand drawing.....	40	5
Gymnasium.....	40	1

COURSE IN MACHINE-SHOP PRACTICE

THIRD YEAR		
English.....	40	3
Shop mathematics.....	40	5
Advanced physics.....	40	6
Industrial history.....	40	2
Machine-shop practice.....	40	15
Machine and free-hand drawing.....	40	5
Gymnasium.....	40	1

FOURTH YEAR		
English.....	40	3
American history or civil government.....	40	2
Chemistry.....	40	6
Machine shop.....	40	20
Machine and free-hand drawing.....	40	5
Gymnasium.....	40	1

In the above outlines one thing is apparent, namely, the tendency to drop part of the academic work and to devote more and more time to some special technical branch as the pupil progresses from the second toward the fourth year in school.

THE CLEVELAND TECHNICAL HIGH SCHOOL

In response to a specific statement from the secretary of this organization a longer description of the Cleveland Technical High School is given as a good example of the general type of separate technical high schools.

*Aims.*—The Cleveland Technical High School has two immediate ends in view: (1) to prepare youth of both sexes for a definite vocation



and for efficient industrial citizenship; (2) to help men and women already engaged in a vocation to better their condition by increasing their technical knowledge and skill. To such as may desire to pursue their studies still further it also offers the opportunity to prepare for entrance to technical schools of college rank.

In most classes the nature of the studies and the purposes in view are so different as to demand a separation of the boys from the girls. There is therefore organized within the one building a boys' school and a girls' school.

*Sessions.*—The daily session consists of nine periods of forty-five minutes each, beginning at 8:00 A.M. and ending at 3:15 P.M. The schedule of technical and laboratory work is arranged in double periods. Ordinarily each student is expected to carry three academic and two technical or laboratory subjects. There is a thirty-minute period for lunch not included in the above schedule.

The school is in session the year round. The year is divided into four quarters of twelve weeks each, with one week between the quarters. By thus eliminating the long summer vacation a saving of an entire year in the usual high-school course is made possible. This is of great advantage to the student (over 500 attending last summer) who for any reason may wish to secure a maximum of education in a minimum of time. Those who do not wish to avail themselves of this advantage or whose physical condition does not permit of the strain of continuous study, still have the opportunity of devoting four full years or longer to their high-school course.

The plan of a continuous session broken up into short terms is also of advantage to the student who from any cause fails in some part of his work, since by these frequent opportunities for readjustment he is given a chance to "catch step" again and to go on with his work in a new class with comparatively little loss of time.

#### DESCRIPTION OF COURSES

The courses not described are not distinctive.

*English.*—In the teaching of English literature, the constant aim is to make clear the relation of literature to life. A development of the power of appreciation is sought. A sense of form can be developed much better by the study of good models, where the pupils see how a master-writer puts his material together, than by the learning of rules.

Such of the college requirements as lend themselves to this treatment are retained. Only those substitutions are made which meet with the approval of the prominent scientific schools. The supplementary reading includes much that is best in invention and discovery, manufacture and distribution, and the attendant industrial and labor problems.

Wherever practicable, the composition work is co-ordinated with the other departments of the school, thus interrelating and binding together the course of study. By these means it is believed the pupil will attain that power, ease, and accuracy in the use of the English tongue which is admittedly of such great practical value as a preparation for life.

*Mathematics.*—The course in pure mathematics includes the usual theoretical work, the study of principles involved, and a thorough drill in mental arithmetic and the control of number.

On the technical side the pupil articulates the mathematics with the work of the drafting-room, shop, domestic science, and domestic art. Teachers of technical subjects are in constant touch with the mathematics department, anticipating problems which will arise and reporting immediately to that department any weakness shown by a pupil in problem or principle. In the Senior year advanced college mathematics is available, but for those not going to college a course in applied mathematics, composed of shop problems and elementary mechanics and electricity, is open.

*Science, physiography.*—The first and second terms are spent in studying physiography and meteorology. The processes of physiography and the land forms which they produce are taken up. A laboratory and field acquaintance with the common rocks is acquired during these terms.

*Study of industries.*—The third term is spent in studying the industries of various regions in their relations to climatic and physiographic conditions. The localization of industries and the cause of such localization can be worked out in a large measure. The location and growth of cities and the causes which govern their location and growth are pointed out. In general, the course aims to give the student an acquaintance with the physical environment in so far as it governs the physical conditions under which he lives.

Excursions to factories and other points of interest in Cleveland and vicinity are made whenever deemed profitable in connection with the study of industrial geography, industrial history, and allied subjects.

*Chemistry for boys.*—This chemistry is given in two separate and distinct courses.

The elementary chemistry is taken in the second year and is required of all boys. Consideration is taken of the more important elements with practical application, as far as possible. Four recitations and demonstrations, with one double laboratory period, constitute a week's work.

The advanced chemistry is taken in the fourth year and is an elective. This course is made intensely practical and includes much elementary metallurgy. The nature, uses, and methods of manufacture of charcoal, coke, iron, and steel are considered. Gas producers and types of industrial furnaces are treated. Modern practical figures and analyses are quoted and used in the discussions and problems.

*Physics.*—A special text has been written by the department in which much more attention is given to practical shop problems, mechanics, heat, and electricity, and less of the theory of physics and a minimum of physics of accurate measurement involved.

*Electrical construction.*—An electrical construction laboratory for trade classes has been equipped and sixty students are engaged in this line. A recitation devoted to theory is held daily and twenty periods per week are given to practical construction problems.

Most of the teachers of technical subjects are men with trade experience who have acquired later the art of teaching. The employment for twelve months in the year makes it possible to secure the best of teachers in competition with the manufacturers.

*Drawing.*—During the first two years, mechanical drawing, in so far as it applies to the shopwork only, is required. Drawings are made of shop problems and individuality of solution in place of class exercise is strictly followed out.

This subject is taught as the language through which the student learns to give graphic expression to ideas which he is later to work out in material forms in shop and workrooms. It is the one medium through which the craftsmen are able to record, clarify, and perfect such ideas as may come to them.

Training is given in accurate work by means of exercises and problems especially designed to enable the student to read intelligently the drawings which he is to use later in his shop practice. These exercises not only bring into use the various instruments in the student's equipment, but also represent some definite object to be made later in his course in joinery, wood-turning, forging, or pattern-making.

In addition to carefully constructed working drawings, free-hand sketches and views are made for the purpose of giving clear mental conceptions of the object and to teach the appearance and relation of the different views to each other, as well as to show the proper position of each on the drawing plate.

*Shopwork.*—Since the fundamental principles underlying all of the arts are identical, during the first two years a more or less definitely prescribed outline of instruction must be laid down. The shopwork of these two years is therefore practically a general course in manual training. The use and care of the various tools and machines, the qualities of materials and the processes of their preparation and distribution, and facility in applying the fundamental principles of construction are the chief ends sought.

This work is intended to be educative and creative as well as technically constructive. From elements and principles taught in the mechanical drawing and shop classes each pupil makes his own designs, which, when approved by the instructors concerned, he executes from working drawings. Within due limitations as to practicability and suitability of form and material, free scope is given to his inventive talent in the making of his design; but this once decided upon, he is held to strict accuracy and workmanship in its execution.

The course prescribed for the first two years is: turning, first quarter (I D); cabinet making, second and third quarters (II and III D); pattern-making and foundry practice, first quarter of second year (I C); forging, second and third quarters, second year (II and III C).

One quarter is also required in machine-shop practice at the beginning of the third year (I B). If at the end of this time peculiar adaptability in any given direction becomes evident to pupil, parent, or teacher, specialization along this line will be permitted in order that upon graduation a pupil may be better fitted for his life-work. The choice of vocation is forced upon a majority of our youth at an early age, and if a proper choice can then be made it is a great advantage.

Twenty-four periods per week are available for trade instruction in the third and fourth years.

#### DISTINCTIVE COURSES FOR GIRLS

*The course in sex physiology.*—Inasmuch as the study of the processes of life and training in observation can best be begun with a consideration of lower forms, the girls are segregated and stress is laid upon hygiene

and physiology for women. Special attention is paid to laboratory work and demonstration.

*Chemistry for girls.*—This course is directly correlated with domestic science and its aim is to give such experiments as will be of practical value to the girls after finishing school.

The applied work comprises the study of combustion, carbohydrates, fats, and proteins in many different phases, the manufacture of foods, the detection of the food principles in foods, such as starch in cereals, sugar in milk, etc.; the detection of adulterants, and some simple analyses, such as milk, eggs, etc.

*Domestic art.*—The aim here is to give such training as will enable girls as they grow to womanhood to appreciate the practical, economic, and artistic value of various materials in their application to dress and home furnishings.

The course includes plain sewing, the making of outfits for use in the departments of domestic science and domestic art, undergarments, shirtwaist suits, simple summer dresses, and millinery. Principles of handwork in the way of rolled edges, setting-in of lace, hand-run tucks, and elementary embroidery are introduced and applied to underwear. Original designs made by the pupils are used for this work and in the decoration of the table linen for the dining-room of the domestic-science department.

*Millinery.*—A course in spring and fall millinery is provided for girls who have learned some of the fundamental principles of sewing. Millinery affords the girls a broad expression of individuality and aims to create an appreciation of artistic color combinations and appropriateness.

The subject is closely connected with the courses in dress-making and applied art and consists in talks on materials used in millinery, wiring hats, making buckram and straw hats, wire frames, facings, building bows and covering frames, renovation of old material, and trimming hats. Attention is given to economy, simplicity, suitability, and the cultivation of artistic taste in all lines of work.

*Domestic science.*—The purpose of the work in this department is threefold: (1) to teach all subjects pertaining to the care and duties of a home, that girls may be prepared for practical home-keeping; (2) to teach all the theory relating to the above subject as applied science, that girls may acquire intellectual development as well as practical skill; (3) to teach institutional cookery and kitchen management as trade subjects, that students may be prepared for catering as a vocation.

*Applied arts.*—As mechanical drawing is made the medium of expression in the shop, so is free-hand drawing in this department. Nature forms are studied and sketched in the flat, in detail, and in color. From these studies pupils derive conventionalized units which by repetition and grouping furnish motives for original ornamental designs and for suggestions of form, proportions, and color harmonies. These they apply directly in constructive work, as in borders for garments, draperies, naperies, and in embroideries, in the decoration of pottery and leather-work; and in the designing, decorating, and making of utensils and articles of household and personal use from various materials and fabrics. The work, therefore, correlates in very definite and practical ways with dress-making, millinery, domestic science, and the mechanic arts and crafts, and with the many occasions in daily life which an intelligent appreciation of fitness and beauty adds greatly to vocational success or personal happiness.

*Costume design.*—For girls taking sewing in the first and second years the design and free-hand drawing is all applied work. Underwear, shirt-waists, skirts, dresses, and hats are designed and the article actually worked out from the design.

*Correlation.*—Domestic-science subjects are often given as themes in the English classes. See also the courses of domestic and applied arts for ways in which these are correlated with domestic science. In short, all technical subjects involving home-making are taken as the basis of the elementary courses for girls, and around these the rest of the studies are grouped.

#### EVENING SESSIONS

One of the most important missions which this school can fulfil is the betterment of people already engaged in a given vocation. The abolition of the apprenticeship system in the subdivision of manufacturing processes has made it practically impossible for mechanics to secure any general training which will increase their efficiency and consequently their earning power in their present position or enable them to fit themselves for a better position. There is a need among the semi-skilled working classes of an opportunity for industrial education, and to meet this need the Cleveland Technical High School offers trade courses during the evening to men and women already employed during the day.

The evening sessions are from 7:15 to 9:15 P.M. The classes are divided into two sections, one meeting Monday and Thursday evenings and the other meeting Tuesday and Friday evenings.

The entire equipment used for instruction in the day school is available for the evening classes. Instruction is offered to men in carpentry, cabinet making, pattern-making, foundry practice, tool-forging, sheet-metal work, machine-shop practice, and electrical construction. Allied with these subjects is instruction offered in trade mathematics, English, applied mechanical drawing, including architectural sheet metal and machine drawing. Complete courses in plain and hand sewing, machine sewing, spring and fall millinery, and the applied arts are available to women. Plain cooking and whatever allied courses may be called for by a sufficient number are also within the scope of the night school. Free-hand drawing, charcoal and water-color rendering, clay-modeling, book-binding, leather-work, art metal-work and design as applied to the crafts are also offered.

The present enrollment is 1,517 day-school students. There are also 450 night-school students with over ninety on the waiting list for the machinery trade classes.

#### INTERPRETATION OF THE TECHNICAL HIGH SCHOOL

In the public technical high schools we seem mainly to have undertaken instruction in the machinery trades, namely, pattern-making and foundry practice, forging, machine-shop practice, mechanical and architectural drawing, and industrial art. The building trades seem to have been neglected. On the other hand, in the Williamson and Wilmerding schools, great prominence has been given to these most worthy lines of instruction.

Further inspection of courses shows that an effort is being made to condense into the first two years the handwork formerly given in the manual-training high schools in four, and to devote the last two years to specialization in some one technical line. The average age of pupils entering high school is fourteen and one-half years. They are then too young to select, or are unprepared through lack of grammar-school training, to receive trade instruction. From this point of view, the two years given to manual training, which seeks to place in the student's hands as much of general industrial aptitude as possible, is well spent and makes a rational choice of trade work at a later date far more probable. It further leaves open to the student the possibility of preparing for a technical college. One of the complaints made against the technical high school has been that it is failing in its purpose of supplying the industrial unit for work at the trade and is inspiring boys to seek an



engineering education. Doubtless this provision in the course of study is wise to just that extent. The technical high school cannot and never should hope to supply the trade with its workmen, but should fit boys to enter industrial callings and at the same time should include technical college preparation.

*Separate technical grammar grades.*—The limited available statistics show that the graduates of technical high schools very generally follow out their lines of training and to advantage. However, there is great need in a manufacturing country for the proper training of those who are to work at the trades, particularly where the highest skill is required as in the machinery trades. This is not the function of the technical high school. In the city of Cleveland—and this is true of nearly every large manufacturing center—fifty-two out of every one hundred girls and boys who enter the first grade of the public schools never get above the fifth grade. A differentiation in the courses of study in the grammar grades is as inevitable as the differentiation that has taken place creating the separate technical high school, and is more to be desired. Most of our population is predestined by birth and environment to enter the ranks of the workers and is entitled to recognition in the preparation open to it for that work. So the separate technical grammar grades are as essential as the separate technical high schools. These grammar grades, so set aside, should have the two-fold function of preparing the boys and girls for workmanship or for further technical education. In the same way the technical high school should fit for foremanship or for the technical college. It is not so much a question of the best education as it is of some education or none. To illustrate this point by a parallel, in Cleveland there were in 1905 six public district high schools with a total attendance of about 4,800. Cleveland was growing at the rate of 18,000 per year, yet there was a growth in the high schools in 1906-7-8 of only six, though the city increased by 54,000 in population. Since then, that is, in a period of equal length, 1909-10-11, the high-school attendance of this city has increased to 7,300, or 52 per cent. This, then, is simply a case of no education in 1906-7-8 for 2,500 children balanced against vocational education for 2,100 in 1911, plus a stimulation in the attendance of over 300 pupils in the academic high schools. It is not then a question of the desirability of the separate technical high school but a question of getting the boy to attend school or allowing him to go uneducated.



If these results can be accomplished for the comparatively small number who finish the eighth grade, the results to be obtained on a basis of the same percentage by the separate technical grammar grade would affect far greater numbers. With the technical grammar grade the opportunities for highly specialized trade work in the separate technical high school will be increasingly greater and the desirability of all forms of education more and more apparent to the public. To a large percentage of the working people, education, as now conducted, seems useless beyond the fifth grade, or it is to be obtained at too great a sacrifice. A change, then, in our whole system is inevitable if we are to check our "growing illiteracy." (This is a quotation from one of the officers of the National Census Bureau.) The separate technical high school is not now able to render its maximum of usefulness to the community for the reason that the pupils entering its courses are not especially adapted to its work through the proper elementary preparation and come to the school largely by chance. Trade instruction also has to be delayed on this account.

In the organization of the separate grammar grade, however, a choice of types of education beyond that point (i.e. in the high school) must not be made impossible. That is, a change of plan must still be available and a boy from the technical grammar grade should not be hampered in his choice of a high school any more than at present. His training should be such that he could enter either an academic, a technical, or a commercial high school with little loss due to preparation.

Looking again at the curriculum of the technical high schools we see that they embrace English and mathematics in common with the academic schools. Science seems also to be a requirement of the former, though frequently an elective in the latter. The substitution of hand-work for a language other than English and a curtailment of the time given to purely academic subjects in the third and fourth year, together with an increase of time devoted to specialization in technical or shop branches, seem to be the main points of difference.

To many pupils, in fact to probably 75 per cent of those who enter the technical high schools, the opportunity to get further education is not possible, due largely to the lack of financial means. These schools must then be the finishing school for most of the boys and girls and to this end the trade instruction is useful. In the New York and Baltimore schools the opportunity to do engineering work of an elementary nature

is a particularly attractive feature. In the Stuyvesant School the equipment, by its very elaborateness, readily lends itself to this end. In fact, there are some colleges which cannot boast of so fine an equipment in their mechanical laboratories as is here available. This is true with regard to both mechanical appliances and electrical machinery. At the Crane School in Chicago the Electrical Construction Laboratory is equally elaborate, though it is reported that the equipment is of greater service to night- than to day-school pupils. In the Cleveland School the effort seems to have been in the direction of trades rather than in that of engineering lines. The field so uniquely held by the Stuyvesant School is certainly one in which other high schools could be of great service. Students wishing to enter the engineering field but to whom the colleges are not a possibility might prolong their courses two years and make the separate technical high school truly "the poor man's college." This opportunity should be made a possibility by extension of the function of our high school.

*Training for technical teachers needed.*—It rarely happens that manufacturers can find foremen or shop superintendents who have suitable training for their positions, and in many instances our best men are foreign-trained. There are two reasons back of this: one is the inability of the manufacturers to offer the proper training to their men, and the other is the lack of proper schools. We cannot, therefore, draw our teachers from the shops and factories except in rare instances. One of the functions of the technical schools should be to train the men, who, with adequate additional shop experience, can in turn take the positions in the technical high schools, or who will be fitted to organize the work of the grammar grades. Technical schools are now suffering as much from a lack of trained men for the teaching staff as from all other causes. Chicago seems to be the only city that has made an effort in a public way looking toward supplying the necessary teachers. In the normal courses of that city, work as now planned will fit teachers for these branches of the profession. But in a country where manual-training schools are growing up everywhere and where technical schools are filled to their capacity before the buildings are even completed, the meager supply is inadequate, to say the least. We must have normal technical training.

*Summary.*—In recapitulation, then, these points should be noted. (a) Proper training must be available in grammar grades: first, for the

trades; second, for the academic school; and third, for the separate technical high school.

(b) Proper training must be available in the separate technical high school for: first, the trade foremanship; second, for high-school engineering courses and technical normal courses; and third, for technical colleges.

These are to be some of the developments in the larger cities in public secondary education in the immediate future.

## **IV.B. INDUSTRIAL TRAINING IN THE COSMOPOLITAN HIGH SCHOOL**

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A cosmopolitan high school may be defined, from the vocational standpoint, as a high school which provides various kinds of vocational education. In such a school are combined the advantages which some communities seek to provide by establishing special types of high schools. Such a school offers many courses and trains for many vocations in one plant and under one management. Ideally, such a school will provide equal or proportional representation of all types of vocations which the children of a given community may wish to pursue.

By direction of the Secretary of this society, the writer characterizes briefly the cosmopolitan high school under his own supervision. With the opening of school in 1911, the high school at Decatur, Ill., moved into a new plant which had been under erection during the preceding years. The building was conceived and built for the purpose of accommodating a cosmopolitan high school enrolling about 1,000 students.

By the time the building was completed the faculty had developed a tentative organization of the lines of work and opportunities to be opened to students. The course provides ten groups of study; each group possesses a core or backbone of required work extending over four years. Certain elective privileges are extended in the elective and optional studies provided in each study group. The course of study which this organization displaced provided strong liberal-arts advantages and in addition a little bookkeeping, cooking, sewing, and manual training. In the present organization, the former work in the liberal arts is broadened and extended and organized into six groups of study—foreign language, English, mathematics, science, history and civics, art—each group taking its label from the lines of work constituting its core or backbone. Vocationally these groups of study are intended to equip students for further study in normal schools, colleges, universities, art schools, and schools of technology. The bookkeeping

has been displaced by lines of work affording extensive business and commercial advantages and fitting for business pursuits, office and clerical work, and for higher study in related lines. Likewise, extensive courses have been provided in the household arts in place of the limited work in cooking and sewing and in the mechanic arts in place of the work previously provided in manual training. The household-arts courses are primarily intended to fit girls for home management. At the same time they will afford large returns to those who wish to go into such trades as millinery or dressmaking, or into teaching, or to pursue advanced study in this field. The mechanic-arts course should render valuable service to those fitting for the trades and industrial work and for advanced study in schools of engineering and technology. The tenth group of study is the normal preparatory group, designed to promote the training, development, and guidance of those students who wish to teach in the public schools.

The foregoing discussion of the organization of the high-school course of study is purposely stated from the vocational standpoint, both because this is the key to its adequate interpretation and because of the standpoint assumed above in defining the cosmopolitan high school. While the preceding discussion analyzes this course of study from the point of view of vocational attainment, the other values it provides, such as discipline, culture, appreciation, and vocational discovery, are definitely sought in its administration.

The term industrial training, or education, has been and is used with various significations and contents. In his *Education for Efficiency* (p. 38), Dean Davenport employs it to include training for agriculture, the mechanic arts, household affairs, and the industries connected with manufacturing. The Committee of Ten of the National Society for the Promotion of Industrial Education (*Report*, p. 71) included in industrial education the trades and agriculture. *Bulletin No. 12* of the National Society defines (p. 19) industrial education in such a way as to distinguish it from other forms of vocational education by saying its "purpose is to fit for a trade, craft, or special division of manufacturing work." Thoughtful speakers and writers have generally accepted the content ascribed to this term in *Bulletin No. 12*, and it was evidently the intention of those who organized this *Yearbook* that it should be so defined. The term is so used in the following discussion.

The problem of the public schools in providing industrial training

is essentially one of producing skilled labor. The school must seek to render efficient and intelligent all those who are to serve society through participation in the industries. It should proceed in the solution of this problem, however, consciously guided by the fact that skilled labor is of two widely different kinds—that which depends mainly on *habit* and that which depends mainly upon *initiative*. Between the extremes of these types of labor we find a large variety of ability with various combinations of habitual action and initiative, of course.

The equipment of these two types of skilled labor is very different. The first type requires that a man shall be so drilled in the handling of particular materials in a particular way that his procedure is always the same. All of his actions are automatic responses emanating from definite, well-established habits. The second type of laborer, on the other hand, will find, as Superintendent Brooks, of Boston, shows (*Report* for 1909, p. 35), that “the overemphasizing of habit will prove a hindrance to mobility of thought and readiness in action when confronted with conditions demanding the use of judgment.” His need is not so much the ability to perform a given set of operations upon particular materials with great speed and a high degree of accuracy. Rather, his equipment consists in a knowledge of machinery, materials, and processes, and of ways and means of employing the same, with the labor available, to secure different and improved products. He must be strong in his mastery of facts and principles, in his ability to concentrate as he reasons on the plans his creative imagination evolves, in his power to draw safe, practical conclusions from the data under consideration in an actual industrial situation, and in the successful execution of plans and policies determined upon. Habit formation enters largely into the development of the laborer who is to exercise initiative mainly, but the habits formed are those which have a wide, general use. It is evident also that the ideals and tastes of the second type of laborer are quite as important as his habits.

No public high school which I have been able to study attempts to provide industrial training for the first type of laborer. The tasks he will be called upon to perform are so subdivided under modern industrial conditions that the school does not need to attempt the development of the particular skill required in such laborers. A very few days' experience in any factory will do for these laborers all that education could ever do in the development of mere skill. The school

City and School	Purpose, Aim, and Plans of School	Work Offered and Other Evidences That Industrial Training is Intended
1. Chicago: all high schools offer two years of work, advanced and intensive work in Lane Technical, Crane Technical, and Lake high schools.	<p>Of the 11 courses announced, three definitely seek to provide industrial training:</p> <p>a) The manual-training course "is to prepare students for the technical industries."</p> <p>b) The builders' course "is to prepare students for the building industries."</p> <p>c) The household-arts course is "to prepare for . . . . the textile trades."</p>	<p>Courses in printing, proof-reading, woodworking, mechanical drawing, foundry, forge, pattern-making, machine-shop practice, machine and architectural drawing, electrical or gas engine construction, brick-laying, masonry, metal-work, electrical wiring, making estimates.</p> <p>Work in mathematics, physiography, history, sanitation, physics, chemistry, biology taught from industrial standpoint, also attention to contracts, specifications, ordinances.</p>
2. Cincinnati: all high schools.	<p>Of the 9 courses announced, the technical co-operative courses for both boys and girls are definitely planned to provide industrial training. During the first two years, boys take technical laboratory work and drawing given in the manual-training course. By close of second year boys "decide what shops or trades they desire to enter." "No trade is taught in school." Co-operation in millinery and dressmaking trades only have been arranged for girls.</p>	<p>Courses announced are manual training, turning, cabinet and pattern making, foundry, forge, machine-shop science and practice, sewing, millinery, dress-making, tailoring, art needlework.</p> <p>"Mechanical drawing . . . . and the work in mathematics, English, and physics is so chosen that the relation between the different subjects and the shopwork is emphasized."</p>
3. Cleveland: the technical high school.	<p>The two ends in view are: (1) "to prepare youths of both sexes for a definite vocation and for efficient industrial citizenship; (2) to help men and women already employed to better their vocation by increasing their technical knowledge and skill." Opportunity is afforded also to prepare for entrance to technical schools. Two years of general work are required of all; in the</p>	<p>The courses include printing, mechanical drawing, turning and cabinet making, foundry practice, forging, machine shop, machine sewing, dressmaking, millinery.</p> <p>The content of the other studies is determined by the aim of the school; e.g., the outside reading in English includes the "best in invention and discovery, manufacture and distribution, and the attendant</p>

City and School	Purpose, Aim, and Plans of School	Work Offered and Other Evidences That Industrial Training is Intended
	last two years specialization in the direction of a vocation is expected.	industrial and labor problems; the mathematics work articulates with the work of the drafting-room, shop, domestic science, domestic art; geography emphasizes industries of various regions; chemistry is related to cooking for girls, and to nature, uses, and methods of manufacturing charcoal, coke, iron, steel."
4. Indianapolis: the manual-training high school.	Specific data were not received, but the principal of the school told me in a conference that their work so far as industrial courses are concerned is exactly like that provided in the Cleveland Technical High School.	
5. Kansas City: the manual-training high school	It is not the aim to produce mechanics any more than any other class of specialists. No special trade is taught, but the aim is to give the pupil that kind of skill and constructive ability which will enable him to take up any trade.	Courses providing work resulting in industrial training are sewing, dress-making, millinery, joinery, turning, molding, pattern-making, forging, machine toolwork. The data supplied do not indicate that work in other subjects is given an industrial bias.
6. Los Angeles: the polytechnic, mechanic-arts and manual-arts high school.	The polytechnic is the technical high school of the city. Its courses are highly specialized. The mechanic-arts high school provides advantages falling between those in the classical and technical high schools. The industrial work is presented from the educational and developmental standpoints. The manual-arts high school provides the work usually offered in a manual-training high school. Its aim in relation to industries is to bring a closer relationship between industrial pursuits and educational advantages. Each of these special high schools is really cosmopolitan in character.	Courses are provided in wood-working, forge, machine shop, machine sketching, mechanical drawing, foundry, pattern making, sewing, dressmaking, millinery, printing. Nine groups of study are provided in the polytechnic high school leading to expert ability in electrical engineering, drafting, pattern-making, forging, cabinet-making, foundry work, machine work, dressmaking, millinery. All other lines of work are presented with special reference to the technical aim of this school. The courses in the other schools are similar but fewer in number and are less highly specialized vocationally.



City and Schools	Purpose, Aim, and Plans of School	Work Offered and Other Evidences That Industrial Training is Intended
7. Louisville: Du Pont manual-training high school.	By terms fixed by donor, "no special trade shall be taught in said school." The work is "not primarily industrial but educational."	Work provided in drawing, wood-turning, joinery, pattern-making, forge, foundry, machine shop.
8. Newton, Mass.: the technical high school.	The aim of the extra technical course is to prepare "for work in the productive industries."	Courses are offered in mechanical drawing, cabinet making, wood-turning, machine and vise work, forging, pattern-making, molding, machine shop, electricity, tool-making, dressmaking, millinery, laundering, catering. All subjects in this course are taught from the industrial standpoint.
9. Springfield, Mass.: the technical high school.	The aim is to "combine and correlate practical training with a full course of academic studies." "No attempt is made to teach either the mechanical or building trades." "Aim in all departments . . . . is educational, broad and practical—not narrowly vocational."	Courses are provided in weaving, sewing, pattern drafting, shirt-making, dress-making, millinery, wood-turning, joinery, metal-work, lathework, pattern-making, forging, machine-shop work, tool- and machine-making. Same plant and equipment is used for evening school of trades.
10. St. Louis: all high schools.	The course in manual training has an industrial bearing, "but it is not the purpose of the course to teach any trade but the work embodies the principles underlying all trades." The aim of the work is educational. "By giving special attention to some one of the occupations taught in the high-schools, workmanlike skill and speed in its practice may be acquired."	Courses provided are such as are common in manual-training schools, joinery, carving, turning, molding, pattern-making, foundry, forging, machine-shop work, sewing, cutting, fitting, garment-making, millinery, laundering.
11. St. Paul: all high schools.	Courses of study are not in print for distribution yet but in each of the four new cosmopolitan high schools four years of industrial work is provided, the superintendent writes, including carpentry, wood turning, joinery, cabinet making, machine, forge, and foundry work.	

may be much, it is sure, in rendering these laborers industrially intelligent, but the training essential in securing this end is largely of the type which emphasizes the development of initiative rather than habitual action.

The controlling aims and the lines of work employed in a number of widely separated, representative general or cosmopolitan public high schools that seek to provide industrial training which should function in the development of industrial workers of the second type and of many of the grades of labor falling between the extreme types, are briefly indicated on pp. 71-73. The data was secured from printed bulletins mainly, although it was necessary to supplement this in some cases by correspondence. It is evident that schools providing strong work in industrial education have been omitted. The list of schools investigated was made up from the writer's personal knowledge and from information received from the Secretary of this society, the Secretary of the National Education Association, the office of the Commissioner of Education for Massachusetts, and the Bureau of Education at Washington.

How wide the gap is between the statement of a school's purpose and the concrete realization of the results it promises, I am unable to determine. The belief seems fairly justified, at least, that a few schools are making a definite beginning through the co-operative plan of work or otherwise, in the provision of training in printing, carpentry, brick-laying, masonry, painting, plumbing, and in the development of the basis for a high type of appreciation and initiative in whatever phase of industrial work the student may go. In view of the results secured in evening classes with a given plant, equipment, and faculty, there seems no insurmountable reason for not securing correspondingly satisfactory results in industrial training with the regular students of the same high school.

## V. THE PUBLIC TRADE SCHOOL

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In these days when the entire public instructional system of the United States is being scrutinized from within and without in the endeavor to reply to the question, "Just what do you do to prepare for vocational efficiency?" those who are actively engaged in the problem of specific vocational preparation are not exempt. Such efforts on the part of the public-school system to send out graduates trained for a definite vocation are new with the exception of higher institutions which have for years prepared students for professional lives and some high schools which instituted commercial courses including shorthand and typewriting.

Two basic questions propounded to the trade school are: Can a boy serve a successful apprenticeship in a trade school? If so, what does it cost the taxpayer? These seem to be the main questions. Those who are interested in educational work have many more questions in detail to ask.

On January 2, 1912, the Milwaukee Public School of Trades for Boys was six years of age. A brief outline of its history, organization, and results obtained during that time follows: On the evening of February 2, 1904, Mr. Frederick W. Sivy, president of the Northwestern Malleable Iron Company of Milwaukee made his inaugural address as president of the Merchants and Manufacturers' Association of that city. Among the matters recommended to be considered by the association during his term of office was the need of industrial education for the youth of the community. His suggestion met with an immediate and hearty response. A committee was appointed to gather data regarding trade schools here and abroad. Loyal support was pledged to the movement. On January 2, 1906, the school was formally opened to sixty young men eager to become skilled workmen. At first instruction in but two trades was given, namely, pattern-making and plumbing in the day and night classes. In September of the same year the machinist trade was added to the curriculum.

Early in the year 1907, a problem, which gradually had been growing more and more serious, had to be fairly met and solved. It was a question of finances. To charge students the cost of their tuition in a properly conducted trade school means to debar the very ones who need the instruction. Equally impractical is it to expect a few to bear the expense of a work so valuable to the entire community. The need of such a school was proven the first day it opened its doors. From its outset it was making better workmen and better citizens. It was the opportunity and privilege of the Merchants and Manufacturers' Association to start such a work in the life of a city, but it was not its bounden duty to continue it. The child grew beyond the power of its parent to support it. Since the work brought a rich harvest to the municipality, the municipality should bear the expense of the sowing. The solution of the problem lay in having the trade school included in the public-school system of the city. To do this, a tax, additional to the one already levied for the public schools, was necessary. This extra assessment could be collected only by the permission of the state legislature. Consequently, a bill was prepared and presented to that body early in 1907. It met with immediate indorsement in both Assembly and Senate. It passed and became effective July 1, 1907.

The Milwaukee Board of School Directors immediately seized its opportunity to take over a trade school well equipped to teach three trades and with one and one-half years' experience in pioneer work. On account of this progressive step on the part of the public-school authorities the original subscribers deeded the entire equipment of the school to the city in fee simple.

The passage of the act made two vitally necessary things possible, namely, a longer and more thorough course and free tuition. More floor space was rented and preparations made to include another trade in the curriculum, namely, a thorough course in woodworking. Instruction in this department began July 1, 1908.

On December 31, 1909, fire destroyed the main building, crippling the departments of machine, pattern-making, and woodworking. Fortunately, the entire loss was covered by insurance. Near-by temporary quarters were rented at once.

During the year 1911 the Board of School Directors authorized the erection of a Municipal Trade School. The building which is being erected is to cost without equipment approximately \$210,000.00. The

site, 300×150 feet, which was obtained by condemnation proceedings, cost \$42,500.00. It is expected two wings of 50×100 feet, and three stories high each, and the power plant will be ready for occupancy by September, 1912. Upon the completion of the new plant it is planned to include several new trades. This, briefly, is the history of the Milwaukee Public School of Trades for Boys.

It will be of interest to note that on December 1, 1909, the Board of School Directors established a Public School of Trades for Girls, which admitted girls at fourteen years of age. This school, which has a capacity for two hundred forty-five girls in day and night classes, respectively, is at present so popular that a waiting-list has become compulsory in all its sessions. It is expected by September, 1912, to be able to accommodate three hundred seventy-five pupils in day and night classes, respectively.

Before touching upon the results accomplished in the six years of its existence, a brief outline of the present organization of the boys' trade school may be of interest. The school is under the immediate supervision of an Advisory Committee of the Board of School Directors, as provided by legislative act. The school is maintained by the assessment of a special tax, not exceeding three-tenths mill, for the purpose of industrial education.

The trades taught are two manufacturing: machinist and tool-making, and pattern-making; and two building trades: woodworking, and plumbing and gas-fitting. The total capacity of the school is one hundred fifteen students in day and night classes, respectively, subdivided as follows: pattern-making, woodworking, and plumbing, twenty-five each, machinist and tool-making, forty. The length of each course is measured by the problems which must be mastered rather than by a specified amount of time. Approximately two years of fifty weeks per year and forty-four hours per week—allowing seven legal holidays per year—making the total time approximately four thousand, two hundred eighty-eight hours is the time usually required by the first three above-mentioned trades. The plumbing and gas-fitting trade requires less time. It is the aim of the school to place the student in conditions as nearly as possible like those he will meet in actual practice. School hours are from 8:00 A.M. to 12:00 M., and from 1:00 P.M. to 5:00 P.M. daily except Saturday; Saturday sessions 8:00 A.M. to 12:00 M.; evening classes 7:30 to 9:30 P.M. on Monday, Tuesday, Thursday, and Friday nights of each week from October 1 to April 30.

The course of instruction in each trade includes the following five branches:

1. Shop Practice and Trade Lectures

2. Drawing . . . . .	{	Mechanical Drawing	{	Isometric
				Working Drawings
				Problems in Design
				Architectural
	{	Free-hand Working Drawing		

3. Workshop Mathematics . . .	{	Shop Arithmetic
		Shop Algebra
		Shop Geometry
		Shop Trigonometry

4. Shop Inspection Trips . . . . .	{	In connection with each trip a carefully written report must be submitted
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5. Practical talks and lectures on subjects connected with each trade, and topics fundamental to all trades.

Approximately one-fourth of the student's time during his course is devoted to mechanical drawing and to the academic instruction incidental to his trade and vitally essential to the first-class artisan whom the world needs and the school is endeavoring to develop; the remaining three-fourths being spent in actual shop practice.

A special feature of all the classroom work consists in adapting it as nearly as possible to the special requirements of the various trades. For instance, a different class of instruction is given in mechanical drawing and workshop mathematics for each trade.

A good working knowledge of elementary mathematics is highly essential to the successful mechanic and foreman, and a good course in this subject is given. While it is conceded that many other branches would prove of value to the students, it has not been deemed advisable to introduce them into the actual work of the school, but the students are urged to supplement their practical work by as much outside reading and study as possible. Home work is required of all students. They are urged to subscribe for some good trade journal along the lines of their chosen trade and keep in close touch with the latest and best methods of trade practice. It is also urged upon them to start a library of their own. The world today has excellent facilities for self-culture for the ambitious and industrious youth. Wisconsin offers the oppor-

tunities of university extension work. The advantages to be obtained by continuation work in the city night schools of both grammar and high-school grade are carefully impressed upon the graduate of this school.

It is not the purpose of the school that its graduates shall be merely skilled artisans; it is intended that they shall not only be trained and efficient, but intelligent workmen, desirous of making the most out of themselves in their chosen vocation from its every point of view.

Each student receives personal attention and instruction and no student is held back on account of the slowness of other pupils. Careful attention is paid to the formation of neat habits of work in each student, and only the best methods of procedure are taught. All work is done from drawings and no problem, either in classroom or shop, that does not have a practical application is given to a pupil. Theory and practice are closely related all through each apprenticeship. It is the purpose of the school to surround the students by the best environment and atmosphere. Habits of punctuality are encouraged and the value of the possession of a good trade impressed upon the students. The use of tobacco is not allowed on the premises.

It is also the aim of the school to secure instructors who are specialists in their line, men who are interested in the work and who can impart their knowledge and experience to apprentices.

The class of work given to the students is carefully planned to be as nearly as possible of equal educational and practical value. Thus the student's interest is aroused and held. A high standard of workmanship is demanded from every student and only those attaining it are permitted to graduate.

The night classes are planned principally to supplement the experience of apprentices and journeymen who are employed during the day at the trade in which they desire advancement under night instruction. The total day instruction of the two-year courses requires four thousand, two hundred eighty-eight hours. The total night instruction of one term of thirty-one weeks at eight hours per week amounts to two hundred forty-eight hours. Thus it is evident that none but students of exceptional ability and determination could expect to serve the entire school apprenticeship in night classes only. The school does not advise students to attempt to learn a trade by this means.

In order to qualify for admission, students must be sixteen years of

age and be able to read and write in English and perform the fundamental operations of arithmetic. Eighth-grade graduates are admitted without examination and are given preference over applicants who have not had such preparation. Since it is required by the Board of School Directors that a pupil be at least sixteen years of age in order to be admitted it is urged upon all boys desirous of entering that they take advantage of every opportunity offered by the public-school system up to the age when they are eligible for admission to this school.

Boys who have graduated from the eighth grade and who desire to attend the Trade School, but who are below the age at which they may enter, will be allowed to pursue in the high schools, until they reach the trade-school age, those studies which will be of most help to them in their future work in this school.

The cost of maintaining this school is approximately two hundred and fifty dollars per year for each pupil. Thus in two years a boy receives an education costing from four hundred to five hundred dollars, and by means of it, the advantage of a start in life of inestimable value.

Tuition is free to boys who are residents of Milwaukee and between the ages of sixteen and twenty. They are required to pay \$1.00 per month for materials. Residents over twenty are required to pay \$5.00 per month, which includes material charges. Non-residents are required to pay \$15.00 per month, which also includes material charges. Instruction is given in night classes four evenings per week from October 1 to April 30, two hours each evening, with charges as follows: Residents between sixteen and twenty, tuition free and fifty cents per month for material charge; residents over twenty, \$1.00 per month for tuition and materials; all non-residents, \$4.00 per month for tuition and materials.

In complying with the request of the Wisconsin Legislative Committee on Industrial Education in the spring of this year for information regarding attendance and per capita cost and the number of graduates the following information was found. These figures include enrolment from January 2, 1906, to April 1, 1911.



TOTAL NUMBER PUPILS ENTERED

Trade	Day	Night
Pattern-making.....	89	105
Machinists.....	132	215
Plumbing.....	119	214
Woodworking.....	28	46
Cable splicing.....	17	...
Mechanical drawing.....	...	22
	385	602

AVERAGE LENGTH OF ATTENDANCE OF PUPILS

	Day	Night
Pattern-making.....	11.4 mos.	4.5 mos.
Machinists.....	7.7 mos.	4.6 mos.
Plumbing.....	3.4 mos.	3.7 mos.
Woodworking.....	9.3 mos.	4.7 mos.
Final average.....	8 mos.	4.4 mos.

CLASSIFICATION OF ATTENDANCE

Day Classes						Night Classes					
24 pupils or			7 % remained 24 mos.			1 pupil or			.2 % remained 27 mos.		
9	"	"	2 1/2 %	"	21	3	"	"	.5 %	"	22
18	"	"	5 %	"	16	1	"	"	.2 %	"	21
15	"	"	4 %	"	13	1	"	"	.2 %	"	19
8	"	"	2 1/4 %	"	12	2	"	"	.3 %	"	18
5	"	"	1 1/2 %	"	11	11	"	"	2.0 %	"	14
12	"	"	3 1/2 %	"	10	4	"	"	.7 %	"	13
15	"	"	4 1/2 %	"	9	4	"	"	.7 %	"	12
16	"	"	4 1/2 %	"	8	4	"	"	.7 %	"	11
24	"	"	7 %	"	7	4	"	"	.7 %	"	10
32	"	"	9 1/4 %	"	6	11	"	"	2.0 %	"	9
19	"	"	5 1/2 %	"	5	13	"	"	2.0 %	"	8
35	"	"	10 %	"	4	61	"	"	12.0 %	"	7
22	"	"	6 1/4 %	"	3	64	"	"	12.4 %	"	6
30	"	"	8 1/2 %	"	2	35	"	"	7.0 %	"	5
48	"	"	13 1/2 %	"	1	51	"	"	10.0 %	"	4
18	"	"	5 %	"	1	52	"	"	10.0 %	"	3
						64	"	"	12.4 %	"	2
					less than	109	"	"	21.0 %	"	1
350			100 %		1 mo	26	"	"	5.0 %	"	less than
35*											1 mo.
385						521			100 %		
						81*					
						602					

\* These students were enrolled during first six months of school. No data was made of their ages.

AVERAGE AGE OF PUPILS ON ENTERING

19 years in day classes  
21 years in night classes

CLASSIFICATION OF AGE OF PUPILS ON ENTERING

Day Classes					Night Classes				
129 students or 37 % enter at 16 yrs.					60 students or 11.5 % enter at 16 yrs.				
67	"	"	19 %	" " 17 "	91	"	"	18.0 %	" " 17 "
42	"	"	14 %	" " 18 "	93	"	"	18.5 %	" " 18 "
30	"	"	9 %	" " 19 "	63	"	"	12.4 %	" " 19 "
24	"	"	6 %	" " 20 "	38	"	"	7.4 %	" " 20 "
15	"	"	3 1/4 %	" " 21 "	27	"	"	5.2 %	" " 21 "
9	"	"	2 1/2 %	" " 22 "	28	"	"	5.3 %	" " 22 "
8	"	"	2 1/4 %	" " 23 "	14	"	"	2.5 %	" " 23 "
3	"	"	1 1/4 %	" " 24 "	11	"	"	2.0 %	" " 24 "
2	"	"	1 1/2 %	" " 25 "	16	"	"	3.0 %	" " 25 "
5	"	"	1 1/4 %	" " 26 "	15	"	"	3.0 %	" " 26 "
2	"	"	1 1/2 %	" " 27 "	12	"	"	2.0 %	" " 27 "
4	"	"	1 %	" " 28 "	8	"	"	1.0 %	" " 28 "
3	"	"	1 1/4 %	" " 30 "	5	"	"	1.0 %	" " 29 "
1	"	"	1 1/4 %	" " 34 "	12	"	"	2.0 %	" " 30 "
4	"	"	1 %	" " 38 "	2	"	"	.3 %	" " 31 "
2	"	"	1 1/2 %	" " 42 "	4	"	"	.7 %	" " 32 "
<hr/>					3	"	"	.6 %	" " 34 "
350			100 %		3	"	"	.6 %	" " 35 "
35*					2	"	"	.2 %	" " 36 "
<hr/>					2	"	"	.4 %	" " 37 "
385					2	"	"	.4 %	" " 38 "
					3	"	"	.6 %	" " 40 "
					2	"	"	.4 %	" " 42 "
					4	"	"	.8 %	" " 45 "
					1	"	"	.2 %	" " 52 "
					<hr/>				
					521			100 %	
					81*				
					<hr/>				
					602				

\* These students were enrolled during first six months of school. No data was made of their ages.

NUMBER OF GRADUATES

Pattern-makers.....	12
Machinists.....	12
Plumbers.....	10
	<hr/>
	34

## AVERAGE WAGES BEING RECEIVED BY GRADUATES

(Having left school at an average of 11½ months)

Pattern-makers.....	31.8 cents per hour
Machinists.....	32.6 cents per hour
Plumbers.....	53.2 cents per hour
	<hr/>
	117.6 cents
Average.....	39.0 cents per hour

The per capita cost is approximately \$250.00 per year.

A brief discussion of above data may prove helpful to those considering the establishment of trade schools. The bald fact that out of three hundred eighty-five students, enrolled in day classes only, in five and one-fourth years but 7 per cent graduate is likely to be claimed as an irrefutable argument against trade schools by those antagonistic to such institutions in any form or location, or in the public-school system. To even state that the average length of time spent by all the day pupils is but eight months is likely to receive a none too hearty welcome. The cost of the help given all these young men can be computed to a cent but the value received by these three hundred eighty-five hungry lives in day classes and six hundred two in night classes is immeasurable.

The chief cause of disappointment to all educators is the fact that pupils do not stay longer in school and their greatest problem is to find ways and means to diminish the ebb flow. Aside from schools which prepare for the professions practically all schools are academic. The majority of the pupils in academic schools do not expect to use their specific training in their bread-earning work, but the attitude of the pupil who enters a school which trains for specific efficiency, coupled with the desire to be an earner, to be free and do with his earnings as he wishes, makes him shortsighted. This same question of discouragingly small harvests from a costly sowing is witnessed daily in other efforts to advance the efficiency and betterment of the community. The money spent by churches, the outlay for Young Men's and Young Women's Christian Associations, the money and effort advanced for the propaganda to stem the scourge of the white plague, the tireless labor expended for multitudinous philanthropic ends—none bring in the harvest which we fain would witness. It is not a question of becoming impatient, discouraged, or disgusted; it is a matter requiring thorough analysis, an

honest acceptance of what the analysis reveals, and a fearless and tireless effort to remedy the weak places and reinforce the strong ones.

The fact that the graduate of a trade school can make a better showing, both as to the quality and amount of his industrial intelligence and also his earning power, at the end of four years from entering school than the commercial apprentice graduate can in the same length of time from starting his apprenticeship, proves that the cause of short attendance is exterior to the school.

The comparative per capita cost between different schools depends upon the trades taught, the equipment for each trade, and the kind of courses offered and the number of pupils in each trade.

Analyzing all the trades in the world it is found that they come under one of two heads—building trades or manufacturing trades. Analyzing farther it is found that all the building trades are dependent upon the manufacturing trades and all the manufacturing trades are based upon four fundamental trades. These are, in logical order, the drafting, pattern-making, molding, and machinist trades. Several striking facts should be briefly noted regarding these four basic industries. They are all vitally united—they form a series of closely allied, correlated, and inseparable steps, and are the beginnings of things in all the world's industries. A baker is a manufacturer; with flour, water, yeast, and other ingredients, all mixed and baked according to a certain formula, he makes bread. From raw materials he gives us immediately a finished product. The manufacturer of steam engines cannot put pig iron in his cupola, mix it with a certain per cent of scrap iron, melt all together and make the finished product of a steam engine by pouring the molten metal into a mold. First the design must be made, then the patterns prepared, castings must next be poured in the foundry, and the machine shop must finish and assemble the parts.

Another important point that must be noted, as bearing upon the cost of trade-school equipment is the rapidly increasing ratio of skilled workers needed in these four trades as the evolution of the steam engine progresses. It is very difficult to obtain absolute figures on this point, but probably a fair average is as follows: Five draftsmen will keep from fifteen to twenty-five pattern-makers busy, fifteen pattern-makers will keep fifty to seventy-five molders employed, and fifty molders will keep from one hundred fifty to two hundred machinists employed. Also to be considered is the fact that in approximately the same ratio the cost

of equipment of the four trades advances. Thus it is evident that first-class machinists are far more in demand than the artisans of any other manufacturing trade. Also it is evident that the equipment of the machine shop is the most costly. School-board directors in cities and municipalities must face this problem fairly and not evade it. A city can well afford to retrench along other lines in order to advance the cause of industrial education. The cost of installation for all the building trades is considerably less than that of the fundamental manufacturing industries. So the equipment of our trade schools should be of the best available tools and machinery. The right trade school should be, not only a source of education to the apprentice, but also to the manufacturer in many ways. The trade school should stand for the highest and best along every line.

Another problem to be met is how to dispose of the products of the school. The Milwaukee Board of School Directors, in endeavoring to solve this problem, passed the following resolution: "*Resolved*, That in accordance with chap. 122, secs. 926-27, Laws of 1907, State of Wisconsin, the products of the Milwaukee School of Trades may be sold in open market at prevailing market prices." When the average length of time of remaining in trade school is lengthened the quality of output of each student will be of higher and higher value, and the returns to the school correspondingly larger and the cost to the taxpayer smaller. In this school much of the output from some of the shops is used in the schools of the city.

The cost of the high-school student per year in Milwaukee is approximately \$60.00, or \$240.00 for his four-year course. The cost of the trade-school graduate is approximately twice this amount for two years, but the trade-school graduate is worth, on leaving school, between three and four times the amount of the high-school graduate who has not had special vocational training in his secondary-school work.

But there is another point from which the municipal trade school may be viewed—that of vocational inspiration. Perplexing as the problem of vocational training for the boy above sixteen years of age may prove to a city, much more difficult is the question to answer rightly what to do with the fourteen- to sixteen-year-old boy who wishes to leave school at fourteen or when completing the grammar-grade work. There are few questions more vital for each boy and girl to answer ere they reach maturity than what their choice of vocation

will be. By rights it should not be necessary for any youth to make such a choice so far-reaching in its results until a good grasp of its import is known to him. And yet in spite of the *individual* and *national* gravity of the matter there is no problem which enters the individual life of a large majority of our youth that is given less serious thought by them, by many parents, by employers, and by boards of education. Just as long as the law permits the departments of education of our country to release their hold on our youth at the age of fourteen just so long will the youth, the nation's greatest asset, be exploited in many ways and all to the loss of the individual exploited.

Between hesitation on the part of boards of education to provide vocational training on the one hand and compelling statistics from the public schools on the other, we are filling the blind-alley occupations with a pitiful supply of what by a merciful interference would make an efficient and grateful CONSERVATION.

In European countries it is the rule rather than the exception that the son learns and follows the trade of his father. In this country the methods of keen competition between many private business colleges assist materially in making the reverse condition true. These private institutions compete with the excellent commercial courses offered free in the high schools of many of our cities. So keen is this competition for students that the addresses of the boys and girls in the eighth grade are paid for in order that the representatives of these private commercial colleges may call upon the parents to bring pressure upon them to send their sons or daughters to these schools. Positions are promised to graduates. By this means many of our boys and girls receive a wrong impression of the true value of an artisan's life simply because a position which permits of white collar and cuffs and clean clothes is made to appeal to them. I look, if not with suspicion, at least with anxious curiosity upon any system of education whereby those who offer it make their livelihood from struggling parents, who already pay taxes in order to offer the same instruction free and in a better way to their children. It is evident that a thorough commercial course in connection with a four-year high-school schedule, with its thorough drill in literature and composition, will make such a graduate of more intrinsic value to the employer than a hasty, crowded course of a year or so in a business college. This does not imply that there are not some good private business colleges or that they do not have their place, but school boards

should know their methods of procedure and take steps to meet their competition by educating both parents and pupils to an appreciation of what a complete high-school commercial course offers.

The city which is fortunate enough to have a municipal trade school in its public-school system can hold before every boy, ere he reaches the age of fourteen, the incentive to remain in school and make the most of himself while he has the opportunity. This can be done by having properly organized and conducted inspection trips for all the boys under fourteen in the public and other schools of the city under the supervision of their respective principals to the trade-school classes while under working conditions. Before leaving the trade school they should be reminded that they must soon leave the school which has been their school home for eight years. Where are they going to? What do they plan to do? What would they like to become? Some have been thinking about the matter, some have never given it a thought. Since they must all make some choice in a few months it is vitally important that they be informed of the heritage which is theirs. They may go on to the high school and choose any of the courses offered there, one of them being a thorough commercial course; they may go on from the high school to the normal school and fit themselves for educational work; or to the university and prepare for a professional life; or they may take the preparatory course at the trade school and afterward the regular trade-school course and prepare for the life of a skilled artisan. They are reminded that it makes little difference what one chooses for his life-work providing he chooses the thing which he feels born to do and that something requires STUDY and TRAINING to reach its highest plane. All must work at something. They are also reminded that a very small percentage of the thousands whom they pass daily, going to and from work, are going to and from a work which they were born, or which they were especially trained, to do. If they prefer the life of an artisan, employers much prefer to hire the trade-school graduate than to try to train him in their shops. Their attention can be called, for instance—to use an illustration given in Milwaukee Trade School during such seventh- and eighth-grade inspection trips—to a modern gear-cutter, made of cast iron and steel and weighing about one ton. The bulk of raw material from which this machine was made was worth about fifty dollars. The machine cost the school one thousand and thirty-five dollars. The difference in price between fifty dollars for the raw material

and the one thousand and thirty-five dollars for the finished tool represented the work and skill required to change the crude stock into an efficient machine. The value of the skilled mechanic, the trained business man, the experienced educator, or the successful professional man over the untrained worker in any walk of life is the amount of self-effort exerted by the individual in trying to reach some goal or ideal. This illustration hits the desired mark, for they have just seen these ingenious workings of the costly tool. The raw material of this high-priced machine might have been melted into rough window weights and sold for but little more than the price of pig iron, or it could be worked into a valuable, useful tool. Do these boys wish to remain practically raw material by beginning as messenger boys and ending by becoming automatons who offer for sale the muscles of their arms and legs, or do they wish to make out of themselves skilled, efficient citizens?

For the boy of fourteen who has completed the eighth grade and who wishes to learn a trade there should be a preparatory department of the trade school where he could learn many things helpful to the skilled artisan while waiting until he can with profit to himself and the community begin upon his regular trade-school course.

The influence of the trade school should also reach out to help a certain class of boys who perhaps cannot for various reasons complete the eighth grade, but who, if saved from employments which will lead them nowhere, would make good artisans at some chosen trade. The best place for trade schools is in the public-school system, and its specific place in that system is where it can help directly and indirectly the boys and girls who feel the desire or need to go to work, and its influence should be available when that desire or need presents itself. Its opportunities should be flexible and not only teach a thorough apprenticeship but also assist in continuation work, and part time instruction if necessary. Its strategic position can be used as a power for vocational inspiration equal to, if not greater than, its opportunity for actual trade teaching.



## VI. THE PART-TIME CO-OPERATIVE PLAN OF INDUSTRIAL EDUCATION

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The co-operative plan of industrial education is primarily an attempt to co-ordinate and correlate agencies already existing, at least potentially, in the factory and the school in order to make better workmen and better citizens from the young recruits to the industries. Because the co-operative plan can be undertaken with very little initial investment, maintained at a minimum cost, and adapted to a great variety of conditions, it is the form of industrial education most widely available for immediate realization. Some entertain doubts of the adequacy of the co-operative school in comparison with the independent trade school on the one hand and the manufacturer's apprenticeship school on the other. The co-operative school with shop practice under factory conditions is more practical than the independent school, dependent on its own shops, but the co-operative school runs the risk of having the shop-work subordinated to other interests not consistent with the greatest thoroughness and progress in learning the trade. The co-operative school with its schoolroom work carried on in an efficient school with established standards of its own in equipment, administration, and pedagogical efficiency has a great advantage over the manufacturer's apprenticeship school carried on wholly within the factory; but on the other hand, there is danger that the school work of the co-operative school may not be made to correlate closely with the factory work. The principal difficulty seems to be in securing the right kind of co-operation. It has been shown that the half-time co-operative schools under favorable conditions may become very efficient and possess many advantages over schools of other forms. The short-time co-operative school having less than half-time, usually four hours a week for school work, is less ambitious in its aims than the half-time school and serves a somewhat different purpose.

## METHODS OF CO-OPERATION

In all industrial education there are several parties in interest: the manufacturer, the workmen, the pupils, and the public. For the purposes of our discussion the interest of the pupils may be considered as part of the interest of the public. In the public co-operative industrial school the three principal parties in interest may become active participants in the management of the school. It is in the harmonizing and fulfilling of the legitimate aspirations of these three parties in interest that the co-operative school encounters its greatest difficulties and achieves its greatest excellence.

The parties in interest have much in common, but each places greatest stress on some feature that beyond a certain point becomes antagonistic or prejudicial to the interests of the others. The manufacturer properly desires a supply of efficient workmen adequate for the legitimate demands of his industry. If, beyond that, he desires to provide a surplus of workmen in order to reduce wages or break a strike, he antagonizes other interests; if he is concerned merely in speed of production, being indifferent to the social welfare of the workmen; or if he is concerned merely with the immediate usefulness of the apprentice to the industry, being indifferent to his progress in his trade, the manufacturer fails to contribute his full share to the fulfilment of the common purpose; if the manufacturer pays the apprentice less than he earns, that is, if the article produced by the apprentice costs less than the same article produced in the regular factory routine, then the manufacturer is again not dealing equitably with the other interests concerned.

Thoughtful workmen desire to recruit their ranks by means properly safeguarded in order that the industry which gives them employment may prosper and pay them good wages and give employment to their children. If the workmen desire to restrict the supply of labor unduly, or attempt to monopolize the right to work at a particular trade, or resist the introduction of improved methods of management and work, they deprive the manufacturer and the public of their lawful interests.

The first concern of the public is that each person, whether engaged in the industries or elsewhere, shall perform his part in the social organism intelligently, efficiently, respectably, and happily. Ability to do well some kind of productive work is fundamental to social efficiency. It is therefore pre-eminently a matter of public concern to train young recruits for the industries and to insure for them a reasonably free and

fair entrance into the vocation in which they are to achieve self-support and make their contribution to the social welfare. The public interest is comprehensive and, rightly conceived, may include all that is legitimate in the claims of the manufacturer and the workmen. Public control of co-operative industrial schools is able to harmonize the interests of the manufacturer and of the workmen, while effectively securing what is so often sacrificed in the controversies between labor and capital—the welfare of the general public. In the management of such a school the manufacturer, the workmen, and the public should all be represented, but the degree of success of the administration will be largely determined by the extent to which they merge their interests into one control for both factory work and school work.

#### SHOPWORK

In order to show the relation of the shop work of the co-operative school to that of other schools it is convenient to classify the various forms according to the purposes they serve as: (*a*) cultural, (*b*) preliminary trade training, (*c*) trade training.

Undoubtedly the use of tools in making things by any boy or girl reacts through the sense perceptions on the whole mental fabric, much as Professor Seguin's system of sense-training reacted upon the mentality of the feeble-minded, stimulating and developing it. The one or two hours a week usually given to such work in the public schools might profitably be extended by school or home tasks to five or ten hours a week for purely cultural reasons. Some slight vocational ends are also served by this work, but as a rule it has no point of contact with real trade-training and should be classified as cultural. Another kind of shopwork introduces the pupil systematically to different machines, materials, and processes belonging to a particular trade or group of related trades, but does so in an experimental way only, not attempting to provide the methods, facility, and experience necessary for production on a commercial basis. As a rule pupils in this class of shopwork make only one article of a kind during their course. There is no commercial product or factory system. Such work must be regarded as preliminary trade-training, if indeed it justly escapes the characterization of dilettante, because incapable of being turned to practical account. Good schools of this class are of great value to pupils preparing for higher technical courses for engineers, superintendents, and

foremen, and may prepare for apprenticeship. They do not provide a point of contact for direct entrance to the industry. Shopwork that gives real trade training conforms closely enough to factory requirements to turn out at the end of the course a workman whom the manufacturer will readily employ as a young journeyman. Some schools maintaining shopwork of this character, however, attempt to provide only a part of the whole course required for complete mastery of the trade. This kind of shopwork produces a commercial product which pays for raw materials, usually provides wages for pupils, and may be made to pay overhead charges if properly managed.

#### TRADE TRAINING IN SCHOOL SHOPS

Many philanthropic trade schools and several public trade schools produce a commercial product in their own school shops. There are many difficulties involved in this undertaking that must be set over against the difficulties of the co-operative plan. In the minds of some the balance is largely in favor of the co-operative plan, whether we consider efficiency in trade-training or problems of administration. Schools that maintain their own shops are at a serious disadvantage, both in the purchasing of raw materials and in the marketing of products. They must establish and maintain their own standards of efficiency in workmanship, speed of production, and *esprit de corps*. Moreover, there is an important psychological effect upon the boy or girl on being brought into contact with the factory in full action: it appeals to the imagination; it is an adventure in an undiscovered country; it ministers to the insatiable desire of youth to know the world. There are apt to be many advantages in equipment provided by the manufacturer in the factory. Such equipment is presumably of the type best suited to economical production; at least it is such as enables the manufacturer to conduct his business successfully. The adaptation of machine tools to the tasks imposed constantly taxes the skill of the inventor and the judgment of the manufacturer as well, who would soon be outstripped by his competitors if he failed to send out-of-date machinery to the scrap heap. I cannot see how a school in which the machine tools were not required to show their adequacy in the cost sheets of production could ever grasp the problem of suitable equipment for the highest productive efficiency, or how a school in which the machine tools did not by a commercial product earn a suitable sum to be set aside for interest and depreciation

could afford to keep its equipment up to date by discarding types of machines and methods that were unprofitable for factory use. While the problem of equipment belongs primarily to the manufacturer, the workman's experience is indelibly impressed by it, and his whole attitude toward his work, as well as his competency as a workman, are materially affected. In the co-operative school the business acumen and experience of the manufacturer are actively enlisted in the management of the school and the completely organized purchasing, selling, and accounting facilities of the factory serve the school at the same rate as the factory.

Nevertheless, it must be admitted that to insure the management of shopwork so as to afford thorough instruction, steady advancement, and comprehensive practice in the various details of the trade are the gravest problems of the co-operative school. In this respect the independent trade school has its greatest advantage. It has been boldly claimed even that "modern industrial methods preclude the giving of such instruction in commercial shops." All must admit the danger that such instruction may be meager, haphazard, or too much interfered with by the exigencies of the factory.

#### FULL RESPONSIBILITY FOR SHOPWORK

To guard against the danger just discussed, co-operative schools should assume full responsibility for the character of the shopwork. The supposition that the manufacturer would not agree to such a plan is hasty and not well founded. He may be led to see that under a suitable plan in which he has a voice full responsibility by the school may be decidedly to his advantage. The Beverly Industrial School is a half-time co-operative school, having full responsibility and control of the shopwork done in the factory of the United Shoe Machinery Company. The Wisconsin Commission on Industrial Training says of the Beverly plan, "The remarkable point and the safe point, both from the standpoint of capital and labor, and also from the standpoint of true industrial education, is that the arrangement is controlled entirely by a committee." The committee consists of five members of the school board, the mayor, and the assistant superintendent of the factory. The superintendent of schools is the secretary and executive officer of the committee and has general supervision of the school. The assistant superintendent of the factory is chairman of a subcommittee of three on instruction in the school. He co-operates with the superintendent

of schools and the director of the industrial school, and he attends to many of the details of management of the shopwork, but is subject in all these matters to the direction of the committee in charge of the industrial school. In no other way does the management of the factory exercise any authority over the school. The manufacturer's redress is to withdraw co-operation. The Commissioner of Labor in his report of the Beverly school calls attention to the fact "that should the company choose to withdraw its co-operation the school might be compelled to discontinue its work." This must be true of all co-operative schools, since co-operation is not compulsory; but there appears to be no good reason why the manufacturer should wish the school to discontinue its work so long as it is properly conducted.

The idea that such a school is a heavy financial burden to the manufacturer is erroneous. The apprenticeship schools maintained by the corporations are self-supporting, including the cost of theoretical instruction. In the co-operative school, with the theoretical instruction carried on at public expense, there is no sufficient cause why the shopwork may not be self-supporting.

The factory work at Beverly is arranged so that a group of twenty-five boys works in a separate department of the factory in charge of a school instructor as foreman. On the following week the same instructor teaches this group at the school, thus making possible the highest degree of co-ordination and correlation between the shopwork and the school work. The first two instructors of this kind (machinist-instructors in charge of pupils in factory on alternate weeks) in the Beverly school had the following qualifications: R. H. L., with Div. A, four years as apprentice with Fay & Scott, Dexter, Me.; two and one-half years in manufacturing and in tool departments of United Shoe Machinery Co.; three years as machinist in U.S. Navy; one-half year as machinist in U.S. Navy Yard at Brooklyn; graduate of Pratt Institute; six and one-half years as draftsman, and one and one-half years as assistant chief draftsman with the United Shoe Machinery Co.; three years as instructor in machine drawing in the Beverly evening school; one year as instructor in machine drawing in evening classes in Franklin Union, Boston; P. D. S. with Div. B, graduate of Richmond Academy, Augusta, Ga., and Rhode Island School of Design; four years an apprentice, one year instructor of apprentices with Brown & Sharpe Mfg. Co., Providence, R.I.; two months in charge of apprentices with Bullard

Machine Tool Works, Bridgeport, Conn.; three years in tool department, three years in drafting room with the United Shoe Machinery Co.

The boys in the Beverly school do not come under the instruction or supervision of the ordinary shop foreman, do not work beside the regular workmen, and do not share with the regular workmen the use of machine tools. The work to be performed is chosen with reference to the pupils' needs and usually consists of reserve orders for small quantities that need not be rushed.

#### **PART RESPONSIBILITY FOR SHOPWORK**

If on account of the boys being scattered through many shops or for other reasons full control of shopwork by the school is not feasible, the manufacturer should be made by agreement answerable to the school authorities for the treatment given the pupils in the factory. Co-ordinators should visit the boys at work frequently, not only to correlate the work but to see that the boy is making suitable progress in the trade and is not exploited selfishly by the manufacturer. The Fitchburg school assumes part responsibility for the shopwork, but there is a lack of definiteness in its requirements of the manufacturers. The director of the school says, "By weekly visits to the shops and inquiries of the boys in their school week, I keep in touch with their work. Should a boy feel he is not getting just what he should he is not at all slow in making the fact known. Then, by taking the matter up with the proprietors and foremen, we soon find out whether or not a change should be made."

#### **NO RESPONSIBILITY FOR SHOPWORK**

A few half-time schools and most of the short-time schools (usually four hours a week) assume no responsibility for the character of the shopwork, the wages of the pupil, or any other matters concerning his progress and general welfare outside of the classroom. It is very difficult for the manufacturer, unaided by the school, unless he organizes a regular apprenticeship course, to carry on the shopwork with a due consideration for all the interests represented in the young worker. Few ordinary shop foremen burdened with their regular duties have the time, skill, or inclination to give systematic instruction to apprentices; owing to the extreme specialization in the American factory system, only



one class of operations can be learned in one department; and after a foreman has "broken in" a new boy and made him self-directing and profitable, he is likely to hold him as long as possible. Often the boy himself, misled by larger wages, is content to remain too long on one kind of work. Lewis Institute is maintaining a half-time course without responsibility for shopwork. "The manufacturers have shown their interest in their apprentices by being willing to incur the inconvenience of changing from week to week the boys who are working on a job, besides paying their tuition of fifty dollars a year. It was contemplated that the boys would pay the tuition out of their earnings." A philanthropist is paying the tuition of pupils in this school at present. The Ranken School of Mechanical Trades has a similar co-operative course for "boys employed during the day. The employer pays the tuition fee of fifteen dollars a year." This is a short-time course of seven hours a week. The Cincinnati Continuation School has a typical short-time co-operative course four hours a week, without responsibility for shopwork. The city provides "the necessary teachers and general equipment for a school of industrial instruction while the manufacturers pledged themselves to send a sufficient number of apprentices to justify the establishment of the school."

The radical differences in the three types of co-operation in shopwork are due not so much to local conditions as to different conceptions of the functions of the school. The full responsibility plan aims at social welfare through public control while serving adequately each subordinate interest. It is not deemed necessary that the pupils should be indentured, the manufacturer restrained from terminating his co-operation after reasonable notice, or the authority of the school instructors over shopwork restricted. This is the highest type of co-operation and should be approximated as closely as possible wherever half-time schools are established. Short-time schools are a palliative, but not a cure, for the lack of intelligent and technically trained workmen. They represent perhaps the minimum requirement which should be made compulsory for all persons under eighteen years of age engaged in the industries. The report of the Wisconsin Commission on Industrial Education aptly says: "Your commission believes in doing something where nothing has been done . . . . in meeting in some way, however meager, the immediate wants of the many. . . . The continuation (short-time) school may be only a stop-gap, but it meets the broadest aim and it will at once reach the greatest number at the least cost."



## UNIT GROUP CO-OPERATIVE SCHOOL

For highly specialized industries, such as boot- and shoe-making, a somewhat different type of co-operative school seems feasible though not yet established so far as I know. There are from sixty to eighty operations to be performed in manufacturing an ordinary shoe. The related processes may be grouped into units, such as cutting, lasting, stitching, finishing. An association of manufacturers in a particular industry of this sort could distribute among the different factories the maintenance of the required school units for teaching the whole trade. Pupils could be enrolled for each unit separately, as in the short agricultural courses, in the slack-time classes, and in evening classes in general, but with this difference, that the shopwork would be closely correlated with the school work. Each unit would represent a link in the chain which, completed, would embrace the whole practice of the industry. A pupil completing one unit would be ready to enter the industry as a worker in that one line; a pupil completing the several units would be master of the combined processes of the industry.

## PUPIL'S WAGES IN CO-OPERATIVE SCHOOLS

An essential principle in the economical management of trade schools is the utilization of the product of the pupils' labor to pay for raw materials and "overhead" charges and to afford the pupil remuneration for his labor in proportion to his competency as a workman. It is desirable for many reasons that pupils should earn wages; youths from fourteen to eighteen years of age have a passion for earning money like adults; sometimes the money is necessary for their support; but most important of all, wages may be made a powerful incentive to good workmanship and speed of production. One of the great advantages of the co-operative school over the independent school is the greater ease with which pupils may be provided with an abundance of productive work. Paying pupils by the hour for both schoolroom and shopwork is the prevailing custom in co-operative and apprenticeship schools, but each pupil should be rewarded in proportion to his achievements as a workman. Paying the pupil for school work by taking half his shop earnings for that purpose is false pretenses, comparable with much advertised social-betterment schemes that distract attention from an unjust wage scale. Whatever objections may be justly urged against the piece price or task price for regular workmen, it certainly has great advantages for pupils in trade schools. The pay envelope is then to

the pupil a constant measure of his productive efficiency, both in the use of time and in the standards of workmanship. Thus the proper balance between speed and good workmanship is constantly and automatically impressed on him.

When the shopwork is carried on in a separate department of the factory, as at Beverly, the accounts should show clearly the net earnings of the shop. This is the amount that should be distributed to the pupils as wages. The equipment account is debited with the value of all machine tools and permanent equipment and is credited from time to time with interest and depreciation charged up on the operating account and with machines and equipment returned to the manufacturer. The operating account is debited with the cost of raw materials, salary of instructor while in charge of shopwork, salary of shop assistant, wages of pupils, and overhead charges, representing power, light, heat, rental of floor space, interest and depreciation on machinery, accident-liability insurance, and cost of accounting. The operating account is credited with the value of all the product passed by the inspector. The value of the school product is determined by the cost sheets of the same articles produced in the regular routine of the factory. In Beverly it was assumed at the start that one-half the piece price was the proper amount to pay the pupil. At first there was rather a large deficit, but the deficit grew steadily less, so that it became apparent that the enterprise would soon be self-supporting on the half-price basis. As pupils reach the third and fourth years of shopwork their wages should more and more nearly approximate those paid regular workmen. The instructor must control systematically the progress from one machine to another and must curb any tendencies of the pupil to desire to earn rather than learn. The shopwork, after it is once under way, can and ought to be self-supporting, but it should never be a source of profit to the manufacturer, as it seems to have been in apprenticeship schools in some cases. One week in the school followed by one week in the factory is the usual plan of alternation. The State Trade School at Bridgeport, Conn., has a half-time scheme with two-week periods instead of one-week. In the Fitchburg, Cincinnati, and Providence high schools the co-operative classes have the same vacations as the public schools, so far as classroom work is concerned, but work full time in the factory in the summer vacation. Also, each pupil on the school week spends Saturday forenoon with his mate in the factory in order to be prepared to take his

place in the factory for the following week. In Beverly the school work continues forty-eight to fifty weeks a year, the same as the factory work, but on the school week the pupils have Saturday free. The machinist-instructor goes to the factory on Saturday of the school week to prepare to take charge of the shopwork on the following week. Long periods of alternation destroy close correlation between school work and shopwork and are undesirable except for slack-time classes. An indispensable feature of a co-operative school is the keeping by the pupil of a fairly complete record of all his shopwork. This record should include amount and description of articles worked on, time spent, free-hand dimensional sketches of articles manufactured, machines and other tools used, and problems that had to be solved. These records should be summarized to show general scope of the shopwork and number of hours devoted to the different parts of the trade. At Beverly it is deemed best for the boys to use jigs and similar labor-saving devices employed in reproducing standard machine parts until they have gained confidence and judgment in the operation of the machine tools; then they are taught to manufacture tools and jigs and experimental parts of machines. By using jigs at the start, pupils can immediately earn a considerable wage and later the teaching of operations without jigs is much simpler because the pupil understands how to use the machine tools to best advantage.

#### GENERAL FEATURES OF CO-OPERATIVE SCHOOLS

The public in America is only very slowly coming to realize what European nations generally have recognized, that the education of youths leaving the elementary schools to work at the age of fourteen is insufficient. Many pupils leave before completing the sixth grade even. For those completing the elementary course, their education is inadequate in amount and kind to protect the employer from unintelligent workmen, the community from ignorance of the requirements of social welfare, or the state from an incompetent electorate.

We provide evening schools which are generally compulsory below the fourth grade, but voluntary in respect to attendance above that point. The half-time and short-time co-operative schools are the beginnings of provisions for education during some portion of the ordinary working hours. Among the half-time schools, Fitchburg, Freeport, Cincinnati, and Providence co-operative classes are departments of high schools.

Completion of the elementary course is required for admission and at least one year full-time in the high school is required before factory work can begin. Cincinnati requires two years. Therefore, these schools deal with a select group of pupils, at least sixteen years of age by the time factory work begins. Lewis Institute, a philanthropic school, charging tuition, has a co-operative half-time class. Pupils must be not less than sixteen years old to be eligible to attend. The Beverly half-time co-operative school receives boys fourteen years old that have completed the sixth grade in the public schools. None of the short-time co-operative schools at which attendance is voluntary receives pupils under sixteen years of age. In Cincinnati in September, 1911, attendance, four to eight hours a week, at a continuation school was made compulsory to sixteen years of age for employed youths over fourteen years of age if they left school before completing the elementary-school course. So far as I know, this is the only compulsory day continuation school now in operation in the United States. A report says, "These pupils are now being classified as to the vocation followed, and will receive expert industrial instruction on the completion of the classification."

#### SUBJECTS STUDIED

Although continuation schools were originally intended to continue the regular elementary-school subjects, they are now chiefly devoted to teaching the technical and theoretical subjects required in the trades practiced. The plan of devoting the co-operative school wholly to the acquisition of technical knowledge and trade efficiency was greatly encouraged by the example of the apprenticeship schools maintained by the large corporations, by the demands of manufacturers not maintaining their own schools, and by the desires of the pupils themselves who hoped to increase their wages by this study. The philanthropic trade schools have also for the most part limited themselves to satisfying the demands of the trade, and give no separate place on the program for the cultivation of personal, social, and civic obligations. A report of the machinists' continuation school at Cincinnati says, "The general culture work has been, perhaps, the most difficult to work out. The school authorities have felt that such work was absolutely essential, while the majority of the boys were inclined to the opinion that it was a waste of time. The problem that confronted the director was to give

the culture work in such a way that the practical value would be evident." Acquiescence in dropping the formal studies of the public schools has been more ready because many that left school to work were not book-minded. Retarded two or more years, they give up and go to work because the school tasks seem beyond their powers. Such pupils can be reached and benefited only by some new method of approach.

This suggests that a new application of the psychology of interest and motivation is required for our industrial schools. May not the love of creative work that enables youths to take so kindly to shop work serve to motivate the personal, social, and civic betterment subjects? May we not with profit change our requirements from memorizing books to right actions; from book civics to intelligent participation in civic life; from formal physiology to hygienic living; from economics to social service; from grammar and composition to shop records and business and social documents? We need less formality, but more concentration, effort, and self-control. Formal examination papers may give way to tests of correct action and correct attitude in the personal problems of daily living. May it not be possible, also, that the industrial school, affording the pupil abundant sense stimuli and experience in manipulating materials and machines in creative work, is a far more effective organism for promoting mental development, at least for certain types of mentality than the bookish courses of the ordinary schools? There are two great purposes in industrial education: first, to cultivate a finer industrial intelligence, a greater skill, and a higher productive efficiency as an industrial unit; second, to develop a finer social intelligence, a controlling moral purpose in action, and a consistent activity according to ability in civic affairs. Experience may prove what some of us already suspect, that these two purposes may be closely correlated. Making an honest living contains the elements of living an honest life. Industrial efficiency, functioning in the person, implies such fundamental virtues as diligence, responsibility, self-control, and co-operation. Industry and right relations with fellow-workmen are an excellent approach to right relations to the community and the state.

Finally, there is a culture resulting from doing and being more vital than the culture derived from books alone. Industrial education makes this vital culture possible in greater or less degree to a class of individuals for the most part hopelessly out of reach of the traditional streams of liberal education.

## VII. THE CINCINNATI CONTINUATION SCHOOLS<sup>1</sup>

PLINY JOHNSTON

Woodward High School, Cincinnati, Ohio.

A certain sanitarium gave a test for insanity which it always claimed was absolutely conclusive. It was very simple. The patient was given a large dipper and was set to emptying a tub of water set under a hydrant with the water turned on. If the patient continued trying to empty the tub without turning the water off he was declared to be hopelessly insane. We, as schoolmen, are undertaking a similar task in our battle against ignorance, as long as we allow a stream of ignorant children to leave our schools, simply because they are fourteen years old.

The continuation school has not stopped the flow. That is a subject for more aggressive action than has yet been undertaken; yet it seems to me that this sort of school has done more to retard the outgoing current than any movement yet inaugurated.

We have in Cincinnati four types of continuation schools, each as well suited to the type of pupils for whom they were devised as we have been able to make them. We probably have made many mistakes—many more than we would have made had we been able to profit from the mistakes of someone else.

### MACHINE-SHOP CONTINUATION SCHOOL

This school was at first a private venture. Two large manufacturers employed a teacher for their men, a teacher not alone of the immediate and necessary principles of their work, but one able to give them also the technical outlook of the skilled machinist.

The apprentice class was the only class considered, and a few hours per week were set apart for the boys who wished to take the instruction.

<sup>1</sup> The author of this paper reports that he wrote to the school superintendents of the larger cities concerning the maintenance of continuation schools but failed to receive any accounts of work being done elsewhere. See A. J. Jones, "The Continuation School in the United States," *Bulletin of the U.S. Bureau of Education*, 1907, No. 1 (distributed gratis) for a discussion of the general problem.—EDITOR.

Encouraged by the results, more manufacturers entered the scheme. They realized that the business of giving an education is such a responsible one that an expert who has made it his life-work should have it in charge. Consequently they consulted the Board of Education and the work was put in charge of the Superintendent of Schools in September, 1909.

The school runs forty-eight weeks a year, eight hours a day, four and a half days a week, besides two half-days which are spent by the teachers in visiting the boys in the shop, seeing the conditions under which they work, consulting with the foremen about the needs of the boys, and getting ideas and material for their guidance in teaching.

The attendance averages about two hundred per week and about twenty-two to a class. The boys are paid their usual wages for attendance by the employers and are docked when absent or late.

A weekly report is made by the school to the employers in time for their pay-rolls. Two teachers are employed, both experienced shopmen and expert teachers. The cost of the school is about \$3,000 a year, or \$15 per boy. Twenty-one shops co-operate with the school.

The students are classified as closely as possible into four groups, according to their year of apprenticeship. The more immature come the early part of the week, and the advanced students the latter part of the week. The course is four years long, corresponding to the term of apprenticeship.

*Course of study.*—The course of study is as follows:

First year: Shop arithmetic, spelling, reading, composition, reading blueprints, drawing, geographical relations of shop materials and civics.

Second year: Objective geometry, science, iron, its manufacture and founding, blue prints, mechanical and technical drawing, shop practice, shop conventionalities and necessities, civics, and the reading of the lives of the world's improvers.

Third year: Geometry and algebra, physics, shop practice, foreman's question box, drawing, civics, and economic history and literature.

Fourth year: Trigonometry and applied mathematics, shop chemistry, shop practice, visiting of industrial plants, and discussing observations, especially of economy and waste, culture, the man as a wage-earner and citizen, debates.

All the work done in school is conducted as class study, the school not being equipped with machinery. The night school held in the



near-by large high school affords an opportunity for the boys to get a training in machinery.

The older men in the shop, who at first scoffed at the education of the apprentices, later made an appeal for some consideration for them. Accordingly, a night school, especially for them, was organized in the same building and by the same teachers, and the men are now studying four nights a week in order that the boys might not displace them. The fifth night the foremen attend school, and all unconsciously apprentices, mechanics, and foremen have learned what successful schoolmen have had burned into their souls, that there is no such thing as standing still, that they must advance, and that advance can only be made by hard study. At the end of the four years, if the work has been satisfactorily done, the boy receives a diploma, which stands for four years of toil scrutinized by foremen as well as teachers.

#### PRINTERS' CONTINUATION SCHOOL

An extension of this school has been made in the Printers' Continuation School, opened September, 1911. This differs, of course, somewhat from the original continuation school in its course of study, but far more in the manner in which it was suggested. This time it came from the workmen, the Allied Printing Trades Council and the Ben Franklin Club. This school meets one day per week, 7:30—11:30 A.M. and from 1:00—5:00 P.M. The boys are paid for attendance by their employers and forty-two have taken advantage of the instruction.

#### CONTINUATION SCHOOL FOR YOUNG WOMEN

The necessity of a continuation school for men is not as great as the necessity of a continuation school for women. No one who has ever engaged in any philanthropic work for girls in our large cities wonders why girls go to the bad; the wonder rather is how any of them ever remain clean. It is said that the New York shopgirl meets only one pure-minded woman in her whole city life, and that is her Sunday-school teacher. Since the Sunday-school teacher seems to be no longer a factor in the shopgirl's life, there is absolutely no influence, except accidental, that works for her good. Our girls now have one interest which they themselves have not created. Two hundred girls are now enrolled in salesmanship classes, in study of applied art and design, and of textiles and fabrics. As a part of this work there are twenty classes



where courses of home economics (nursing, sewing, and cooking) are given to young housewives. I would say of this course that it is the only one in all our public schools that is actually given at the time when it is most appropriate. The attendance on these classes is five hundred.

#### COMPULSORY CONTINUATION SCHOOLS

Last and most important of all in matter of numbers and influence is the compulsory continuation school.

Boards of education in Ohio are given permission to establish continuation schools for youths from fourteen to sixteen years of age, who are employed, and, after having established such a school, are given the right to compel attendance. The time required of the youth must not exceed eight hours per week. The Cincinnati board decided on four hours a week.

These pupils are divided into sixth, seventh, and eighth grades. As they are with us but one-half day per week their work must be of such a character that it will completely monopolize their time while in school, and cover as nearly as possible the leisure time outside. The four hours are divided into six periods, with a short recess.

*Work for girls.*—On the manual side the girls sew in the sixth, cook in the seventh, and make hats in the eighth grade. The girls of the sixth and eighth grades are given a period per day in industrial art of such a nature, for instance, as shirtwaist designs to supplement their work in sewing and hat designs for millinery. The girls are encouraged to note the fit of their own dresses, to bring garments from home which need remodeling, to finish garments cut out in school, to be able to tell long-wool cloth from shoddy, and finally to cultivate a taste, not for expensive, showy clothes, but for quiet clothes of honest worth. It may seem a trivial matter to direct the clothing of our young girls, but when we are told plainly that young girls are willing to barter their character for fine clothes and new hats the work does not seem out of place.

The scholastic side is not neglected, yet we cannot hope to cover the whole ground in arithmetic, grammar, geography, and history. We teach only the bare essentials in arithmetic, and there is certainly no great opportunity for close application in any branch. The usual lists of books were sent to these schools and the books were distributed, and very often the principal has been detected hiding such necessary books as algebra and formal grammar.

*Work for boys.*—Our boys are not set at the usual first work of manual training, namely, benchwork (not a particularly engaging work), but are immediately put in charge of a machine, a wood-turning lathe. The wheels go round and boys of the wilful sort cease thinking of themselves, because their attention is compelled by the machine they handle. By introducing the most active element first, their interest is at once secured and is thereafter easily directed to the quieter fields of manual training, such as mechanical drawing and pattern-work.

In the academic work the same principle of elimination and careful selection is followed as stated above in connection with the boys' courses. Every principle in arithmetic and grammar is on trial for its life, and many of the hoary haired have been thrown into the wastebasket.

*Parents interested.*—More attention is paid to the parents here than in any other school. On many an afternoon they come in "to see my boy or girl at work," and on many an afternoon they listen to the orchestra, the drama enacted by the pupils, the interesting talks, etc., which are given between 4:00 and 5:00 P.M., and then they return home with their sons and daughters, feeling that the world is growing better and that life is more worth while. Our unruly boys and girls (and there are a few that kind treatment and interesting work are not able to curb) simulate good behavior, because if they do not behave in school, their employer will be informed and they will be dropped.

*Pupils' interest in the work an important factor.*—The age of fourteen to sixteen inclusive is recognized as the rapid development of interest in self and life. There is need for care at this age in respect to the social life, and the reason that the high school in some of its phases is a most bitter disappointment is because of the lack of this social life. At this age the question of what the children learn is not as important as what they get by association, inference, and intuition. These young folks are put at automatic work in the shops. Their employers have learned by long experience that young persons, at this age, do not think—at least not about the interests of their employer or the care of his machinery. Thus they are set to work at machines where the only evidence of brains is found in the inventor. Day after day they do the same thing, the same way, and watch the clock till escaping time comes. Fatigue toxin has poisoned their bodies and their minds. The relief from that toxin is sought in amusement, and the amusement at hand is not of the right sort. Our course of study seeks, first of all, to interest the pupils in their work; and second, to give them something to think about during the

week. The girls are sewing and drawing and watching hat styles in the windows and on people. The boys go to the public library and read up to be ready for the other fellow in debate.

The employers insisted that we should teach the essentials, and these, in their opinion, were arithmetic and spelling. But when we attempted to teach the good old standard studies in the same old way, we were met with sullen, unresponsive silence. The reason was not hard to find. The principal questioned a class, thirty boys in all, as to why they had stopped school at the end of the fifth grade. Four boys stopped because their parents actually needed them, and twenty-six stopped because they were tired of school. What would you think of the continuation school that had so little pliability as to teach these sullen boys the same way in which the hated school they had just escaped from had done? Need we give any other reason to show why the old-time methods will not do in the continuation school?

Girls and boys go to the bad between the ages of fourteen to sixteen. Of course it may occur after that period, but unrestrained, unbridled youth, at this period, lays the foundation for a life of bitterness. The ideal school would keep children from fourteen to sixteen in school all the time, but since we have not, as yet, ideal laws, we must not let them run unrestrained after fourteen. The employer is too busy, but between the supervisor of the continuation school and the employer there is much useful supervision bestowed upon the youth.

The continuation school for older persons is a comparatively simple problem. These men and women have their fairly fixed habits, and it is not so much the individual that must be taken into account, but his life-work. That is, his trade is his concern and ours too. But in the compulsory continuation school we have the young animal to deal with, and the choice of the young animal's trade. He is vagrant both in body and mind. I will give you a type—not the worst by any means, but a boy taken at random. Here is his record, as taken from the Labor Certificate Office:

K828, WHITTIER SCHOOL, 7TH GRADE, AGE 15

Oct.	17, 1910	Ohio Messenger Co.....	\$5.00
Nov.	12, 1910	Robt. Clark Errand Boy.....	5.00
Dec.	3, 1910	Cincinnati Hat Frame Co.....	
Mar.	3, 1911	Victor Lamp Co.....	4.50
Apr.	10, 1911	Wm. Newmark Co.....	
May	15, 1911	Rubel Bros.....	4.00
June	15, 1911	Krippendorf, Dittman Co.....	

This boy is drifting and I am told the girls are no better. This problem confronts all cities, and after the youths are gathered together, another and more perplexing problem will present itself, as it has to us. These young animals are pining for excitement, interest, sensation, and change. Most of them belong to the class of automatic workers, a most dangerous class to handle. Three ways of teaching were before us: first, to teach as we had always done, trusting to the sense of accomplishment to cause zest for future work; but I believe that no one who has ever faced a continuation school would ever advocate this method; second, to furnish sensational pleasure, to amuse, delight, anything to take their minds off their work, in order to present an antidote for the accumulated fatigue poison—the suggestion of a sociological expert; third, to teach the essential subjects in the most interesting way, to delight the mind and the eye by proper entertainments, and teach somewhat along the line of their work.

We have chosen the third plan and we have not yet repented of it, possibly because we have not tried it long enough. We can make no boast, except that we have succeeded in bringing to the front one more very difficult line of school work.

## VIII. VOCATIONAL GUIDANCE

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MEYER BLOOMFIELD

Director of the Vocation Bureau of Boston

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When the Civic Service House, a social settlement in the crowded North End of Boston, invited the late Professor Frank Parsons, in October, 1908, to undertake a work of personally advising with the young men and women who attended its clubs and classes it soon found an outside call for such service to a degree which taxed the strength of the adviser and the resources of the institution.

So thoroughly did Professor Parsons conceive and outline his work, so detailed and even scientific were his methods of consultation, that before very long there literally came to him a country-wide demand for information and personal help. He was spared only long enough to write his *Choosing a Vocation*, the first modern work on this subject.

After his death, one of Boston's leading merchants and a number of public-spirited men and women decided to organize the work of vocational advising on a scale adequate to the demands which kept increasing. Mrs. Pauline Agassiz Shaw, the founder of the Civic Service House, and the writer, who for ten years had been its director, co-operated in this effort. Later the writer secured a leave of absence from settlement duties in order to direct the development of the new Vocation Bureau.

On May 4, 1909, Mr. Edward A. Filene, as one of the moving spirits of the civic movement known as Boston 1915, received the following letter from the secretary of the Boston School Board:

DEAR SIR: I respectfully call your attention to the following order which was passed by the School Committee at a meeting held yesterday evening.

"Ordered, that the Boston-1915 Committee be requested to secure the co-operation of the Vocation Bureau for the purpose of assisting graduates of the public schools of this city in choosing wisely the most appropriate employment, etc."

On May 12, after a conference in the Boston-1915 office, the Executive Committee of the Vocation Bureau sent the following statement of its plan of co-operation to the School Board:

First, The Vocation Bureau will employ a Vocational Director to give practically his entire time to the organization of vocational counsel for the graduates of the Boston Public Schools during the ensuing year;

Second, The work of this Vocational Director shall be carried on in co-operation with the Boston School Committee or the Superintendent of Schools, as the committee shall see fit;

Third, It is the plan of the Bureau to have this Vocational Director organize a conference of the masters and teachers of the Boston High Schools through the School Committee or through the Superintendent of Schools, for the purpose of providing that members of the graduating classes will be met for vocational advice either by this Vocational Director or by the co-operating schoolmasters and teachers, all working along a general plan, to be adopted by this conference.

Fourth, This Vocational Director should, in co-operation with the Superintendent of Schools or any person whom he may appoint, arrange vocational trips and vocational lectures for the members of the graduating classes.

Fifth, The Bureau believes that schoolmasters and teachers should be definitely trained to give vocational counsel, and therefore that it is advisable for this Vocational Director, in co-operation with the Superintendent of Schools, to establish a series of conferences to which certain selected teachers and masters in the schools shall be invited on condition that they will agree in turn definitely to do vocational counseling with their own pupils.

On Monday, June 7, the Boston School Committee having adopted the vocational guidance plans submitted, instructed the superintendent to appoint a school committee of three masters and three sub-masters to meet regularly with the director of the Vocation Bureau. This committee has been holding weekly meetings at the office of the Bureau, and its report after a year of service deserves quoting. Among its more important statements and recommendations are the following:

The Committee on Vocational Direction respectfully presents the following as a report for the school year just closed. The past year has been a year of beginnings, the field of operation being large and the problems complicated. A brief survey of the work shows the following results:

A general interest in vocational direction has been aroused among the teachers of Boston, not only in the elementary but in the high schools.

A vocational counselor, or a committee of such counselors, has been appointed in every high school and in all but one of the elementary schools.

A vocational record card of every elementary-school graduate for this year has been made, to be forwarded to the high school in the fall.

Stimulating vocational lectures have been given to thirty of the graduating

classes of the elementary schools of Boston, including all the schools in the more congested parts of the city.

Much has been done by way of experiment by the members of this committee in the various departments of getting employment, counseling, and following up the pupils after leaving school.

The interest and loyal co-operation of many of the leading philanthropic societies of Boston have been secured, as well as that of many prominent in the business and professional life of the city and the state.

A good beginning has already been made in reviewing books suitable for vocational libraries in schools.

It was early decided that we should confine our efforts for the first year mainly to pupils of the highest elementary grade as the best point of contact. The problem of vocational aid and counsel in the high schools has not as yet been directly dealt with, yet much that is valuable has been accomplished in all our high schools on the initiative of the head-masters and selected teachers. It is safe to say that the quality and amount of vocational aid and direction has far exceeded any hitherto given in those schools. The committee, through open and private conferences, and correspondence with the head-masters, have kept in close touch with the situation in high schools, but they feel that for the present year it is best for the various types of high schools each to work out its own plan of vocational direction. The facts regarding their experience can properly be made the basis of a later report. A committee of three, appointed by the Head-masters' Association, stands ready to advise with this committee on all matters relating to high-school vocational interests. Once during the year the principals of the specialized high schools met in conference the vocational counselors of the city and have presented the aims and the curricula of the schools in such a way as to greatly enlighten those responsible for advising pupils just entering high schools.

The committee have held regular weekly meetings through the school year since September. At these meetings every phase of vocational aid has been discussed, together with its adaptability to our present educational system. Our aim has been to test the various conclusions before recommending them for adoption. This has taken time. Our most serious problem so far has been to adapt our plans to conditions as we find them, without increasing the teachers' work and without greatly increased expense. We have assumed that the movement was not a temporary "fad," but that it had a permanent value, and was therefore worthy the serious attention of educators.

Three aims have stood out above all others: first, to secure thoughtful consideration, on the part of parents, pupils, and teachers, of the importance of a life-career motive; second, to assist in every way possible in placing pupils in some remunerative work on leaving school; and third, to keep in touch with and help them thereafter, suggesting means of improvement and watching



the advancement of those who need such aid. The first aim has been in some measure achieved throughout the city. The other two have thus far been worked out only by the individual members of the committee. As a result we are very firmly of the opinion that until some central bureau of information for pupils regarding trade and mercantile opportunities is established, and some effective system of sympathetically following up pupils for a longer or a shorter period after leaving school is organized in our schools as centers, the effort to advise and direct merely will largely fail. Both will require added executive labor which will fall upon the teachers first. We believe they will accept the responsibility. If, as Dr. Eliot says, teachers will find those schools more interesting where the life-career motive is present, then the sooner that motive is discovered in the majority of pupils the more easily will the day's work be done and the product correspondingly improved.

In order to enlist the interest and co-operation of the teachers of Boston, three mass meetings—one in October and two in the early spring—were held. A fourth meeting with the head-masters of high schools was also held with the same object. As a most gratifying result the general attitude is most sympathetic and the enthusiasm marked. The vocation counselors in high and elementary schools form a working organization of over one hundred teachers, representing all the schools. A responsible official, or committee, in each school stands ready to advise pupils and parents at times when they most need advice and are asking for it. They suggest whatever helps may be available in further educational preparation. They are ready to fit themselves professionally to do this work more intelligently and discriminatingly, not only by meeting together for mutual counsel and exchange of experience but by study and expert preparation if need be.

As a beginning of our work with pupils we have followed out two lines: the lecture and the card record. The addresses have been mainly stimulating and inspirational. It seems to the committee, however, that specific information coming from those intimately connected with certain lines of labor should have a place also in this lecture phase of our work. In a large number of high and elementary schools addresses of this character have been given by experts during the year. The committee claim no credit for these, though carried out under the inspiration of the movement the committee represent. The custom of having such addresses given before Junior Alumni Associations, Parents' Associations, and evening school gatherings has become widespread, the various masters taking the initiative in such cases. The speakers are able to quote facts with an authority that is convincing to the pupil and leads him to take a more serious view of his future plans, especially if the address is followed up by similar talks from the class teacher, emphasizing the points of the speaker. This is a valuable feature and should be extended to include more



of the elementary grades, especially in the more densely settled portions of the city, from which most of our unskilled workers come.

A vocational record card, calling for elementary-school data on one side and for high-school data on the other, has been furnished all the elementary schools for registration of this year's graduates. The same card will be furnished to high schools this fall. These cards are to be sent forward by the elementary-school counselors to high schools in September, to be revised twice during the high-school course. The value of the card record is not so much in the registering of certain data as in the results of the process of getting these. The effect upon the mental attitude of pupil, teacher, and parent is excellent, and makes an admirable beginning in the plan of vocational direction.

The committee are now in a position where they must meet a demand of both pupils and teachers for vocational enlightenment. Pupils should have detailed information in the form of inexpensive handbooks regarding the various callings and how to get into them, wages, permanence of employment, chance of promotion, etc. Teachers must have a broader outlook upon industrial opportunities for boys and girls. Even those teachers who know their pupils will generally have little acquaintance with industrial conditions. The majority can advise fairly well how to prepare for a profession, while few can tell a boy how to get into a trade or what the opportunities therein are. In this respect our teachers will need to be more broadly informed regarding social, industrial, and economic problems. We have to face a more serious problem in a crowded American city than in a country where children are supposed to follow the father's trade.

In meeting the two most pressing needs, viz., the vocational enlightenment of teachers, parents, and pupils, and the training of vocational counselors, we shall continue to look for aid to the Vocation Bureau. The Bureau has been of much assistance during the past year, in fact indispensable, in matters of correspondence, securing information, getting out printed matter, and in giving the committee counsel based upon a superior knowledge of men and conditions in the business world.

The question of vocational direction is merely one phase of the greater question of vocational education. As a contributory influence we believe serious aggressive work in this line will lead to several definite results, aside from the direct benefit to the pupils. It will create a demand for better literature on the subject of vocations. It will help increase the demand for more and better trade schools. It will cause teachers to seek to broaden their knowledge of opportunities for mechanical and mercantile training. Lastly, it will tend to a more intelligent and generous treatment of employees by business houses, the personal welfare and prospects of the employee being taken into account as well as the interests of the house itself.

What has given rise to the nation-wide interest in the subject of vocational guidance? Advising with young people as to their future is not a new thing. The teacher has long been the child's counselor. Parents have always felt the deepest concern in this vital matter. What is the reason for a separate and specialized organization's undertaking a service so intimate and personal? Reflection must convince one that personal and individual effort, however invaluable, cannot deal adequately with modern conditions. Tenement homes, a large immigrant population as yet unacquainted with the possibilities of the new country, large school classes, and complex conditions of commerce and industry give rise to a situation which, besides friendly sentiment, needs facts, organization, and even science to understand and cope with.

We are living in the midst of a restless period, impatient with crudeness, and too preoccupied to pause over the stumblings and gropings of its bewildered youth. Into this arena of tense effort, the schools of our country send out their annual thousands. We somehow trust that the tide of opportunity may carry them to some vocational destination. Only the relatively few who reach the higher training institutions can be said to have their problems at least temporarily solved during the critical period of adolescence. A multitude are sent out to cope with the new conditions of self-support. Whose business is it to follow up the results of this transition from school to work? Whose business is it to audit our social accounts and discover how far our costly enterprises in education, the pain, the thought, the skill, and the sacrifice we put forth with the growing generation are well or ill invested in the field of occupation? The higher training schools are as profoundly concerned in this problem as are the elementary schools. The well-to-do are no less affected than the poor. Until society faces the question of the life careers of its youth, the present vocational anarchy will continue to beset the young work-seekers.

It is clear that we have slighted that part of a youth's life which marks the serious and critical transition from school to work, from the shelter of social care to the liberties and responsibilities of wage-earning. And we naturally expect therefore certain definite consequences of this neglect.

To some extent there is a reason for the meagerness of attention to this matter. Educational policies have not been so perfected as to afford those concerned with them the freedom and the leisure to regard much else, however pressing. Indeed it is fair to say that many a strong

word has come from the friends of school children who have been realizing the pitiful futility of spending all we do for our children with the certain prospect of nullifying for many whatever benefits have been gained during school life.

To the public as a whole, and not to any group of people, does the responsibility for making good the child's investment of its training lie. Vocational guidance presents itself as a community problem.

An important step in this direction was the organization in Boston of the Vocation Bureau, the first of the kind in the country. The men and women behind it, leaders in commerce, industry, education, and social service, appreciated keenly the present misdirection and waste in the critical transition from school to work. They saw that choice of a vocation is impossible to young people ignorant of the conditions of success and efficiency in the modern working world, and understood that neither school life nor working life could serve to best advantage unless training, information, and purpose were brought to those in need of them. Thousands of children leave school for work, not to follow a calling, but to get a job. Unguided, unprepared, and uninformed they find themselves in a condition of vocational anarchy. The social loss of all this, as discovered by reports, statistics, and observable consequences, is appalling. Our children are "pitch-forked into the working world," as Charles Booth has said. To lessen this social waste, to furnish necessary information about various occupations and their advantages and disadvantages and the training necessary for efficiency in them, to broaden the range of choice, and to deepen the "life-career motive" in education and in employment, the Vocation Bureau was organized. The main interest of the Bureau is not the employment of youth, however favorable and pleasurable the opportunity, but its best social investment. Underlying all its endeavors is the realization that a longer period in school and continued training are fundamental to achievement in every desirable occupation.

In accordance with this plan 117 teachers were appointed to serve as vocational counselors, and the opportunities open to boys and girls were fully discussed in a course of lectures and discussions conducted by the vocational director. Among the subjects presented were:

The Principles of Vocational Guidance.

The Shoe Industry.

The Boy and Girl in the Department Store.

The Sources and Methods of Vocational Guidance.

The Machine Industry.

A Group of Trades for Boys.

The Telephone Industry for Girls.

Stenography and Typewriting for Girls.

Bookbinding for Girls.

Architecture.

The Use of Statistics.

To supplement these discussions the Bureau has made a study of some forty or fifty Boston occupations, and a series of bulletins has been issued to the school counselors including among other titles:

The Machinist.

Banking.

The Baker.

Confectionery Manufacture.

The Architect.

The Landscape Architect.

The Grocer.

The Department Store.

This year's series of talks to school counselors will include:

*For Boys:*

The Machine Trades.

Agriculture.

Mechanical and Civil Engineering.

Electrical Engineering.

Textile Mill Working.

The Building Trades.

The Selling Clerk.

*For Girls:*

The Needle Trades.

Opportunities in the Department Store.

Conditions in Industry for the Young Girl Wage-Earner 14-16 Years Old.

Vocational Opportunities for the Girl Who Completes the High School.

The results of this work have been extremely important and the usefulness of vocational guidance has become definitely established. Fundamentally, vocational guidance aims to fit the boy and girl for their work and, what is equally important, to make their work fit for the boy and the girl. School life and working life are asked to co-operate in making the most of youth's possibilities. This is a service in behalf of efficient democracy; for work and school must join hands in fitting the future citizen for the highest and best achievements.

## IX. INDUSTRIAL EDUCATION IN THE NORTHWEST

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BEN W. JOHNSON

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The Northwest, particularly the state of Washington, is making some progress along the lines of industrial education and vocational training in the elementary and intermediate field of education. The meaning of the terms industrial education and vocational training is that used by Dr. David Snedden, commissioner of education of the state of Massachusetts.

The description of the schools established this fall in Seattle will further illustrate the writer's understanding of these much-abused terms.

The history of the movement here parallels that of a number of eastern states, notably Ohio. Manual training began its leavening influence in the school curriculum eighteen years ago in the Seattle High School. Since that time it has made itself an important department of the city's school system, requiring over fifty teachers for its instruction in all grades of the school. Tacoma and Spokane followed soon after Seattle, and have had a proportionate growth. Today there is scarcely any town over 4,000 which does not have some form of manual training in its school work, while many rural communities are making a beginning in elementary handwork and agriculture.

Like the best progress of the East the subject manual training has itself been greatly modified in method and content and an effort has been made to use the industries of the community as the basis of this work.

Such is the case in the great fruit-raising sections of the state. An example of this is at Wenatchee, where agriculture is being taught very successfully, with the emphasis upon horticulture and the present and future needs of that great fruit-growing country.

A similar example is that at Waterville. Led by a very able and public-spirited citizen, Hon. A. L. Rogers, the people are laying the foundation for what may be a very remarkable country school, in which

the boys from the entire countryside are to be taught such industrial branches as will fit them for the highest efficiency in practical farming.

At Snohomish the school board has recently acquired a considerable tract of land for practical agriculture. It also has iron- and wood-working shops in connection with this high school. The work in the latter, however, is based upon the educational rather than vocational point of view.

On the Pacific slope of this state, the region of the great fir and cedar forests, woodwork and the vocations dependent upon the production, manufacture, and distribution of this all-important product predominate. For the boy, at least, the forms of manual training using wood are fundamental. For the girl, the home-makers' arts everywhere universal and fundamental to womankind are the basis of her manual training. The vocational impulse, however, affects these subjects for the girl only so far as they equip her better for the actual work and responsibilities of the home.

The writer is not aware of any vocational or industrial education in this section that seeks to equip the girl better for earning a living in definite lines of women's work, other than those few, such as dress-making or millinery, that may be developed from her work in the home-making course of the regular school work.

The seeming lack of schools for vocational and industrial education is not so much due to any failure on the part of those responsible for the promotion of the educational plans in either state, county, or city districts but rather to a failure on the part of the people as a whole, who do not yet feel any serious need for vocational education. The reason for this is that the state is new and the development of the raw material of the state is but scarcely begun. Lumbering and fishing predominate in the western section while wheat-growing and fruit-raising predominate in the eastern section.

Manufacturing has scarcely begun with us, consequently the commercial pursuits predominate in the cities and towns. That we are destined to become a great manufacturing section is evidenced by the abundance of raw material available, and also from the marketable water-power available in the Cascade and Coast ranges of mountains.

Further evidence of this attitude was shown in the last session of the state legislature when a bill for the appointment of a state commission on industrial education was defeated, because the legislature was

averse to appropriating any money for this purpose and because it thought the state Department of Public Instruction able to carry on any investigation as to the industrial and vocational conditions, both in the schools and the industries of the state.

However, realizing that a beginning should be made and that there is no pressing demand for a trade school, Seattle, the largest city in the state, has this fall opened up three so-called industrial centers to accommodate the pupils of the intermediate period—the seventh and eighth grades and the first and second years of the high school.

Preliminary to carrying out this plan the usual manual-training course for the boys of the sixth, seventh, and eighth grades was the year previous enlarged in its aim, content, and method from the usual educational manual training of giving the boys sequential problems in construction, in the solution of which the boys would gain something of skill in tools and processes, some knowledge of the materials used, and some appreciation of the constructive life about them. This enlargement consisted in making an industrial or vocational approach to the manual arts—using them to illustrate as actually as possible the industries and vocations that are dependent upon these arts.

While the limitations imposed by the regular school program prevented very much change in the actual work done by the boys, it was possible to give it a larger significance as a study of those vocations using similar materials and processes.

For example, in the sixth grades the aim is to emphasize the four important facts the worker in wood has to know to be successful in his vocation: (1) his tools and how to use them; (2) what woods and materials are suitable to use and why; (3) how to form and put them together; (4) what is wanted and how to supply it.

In the seventh grade this approach emphasizes the same idea, but from another standpoint. Here the different kinds of workers in wood are brought out. The differentiation due to the service each renders society by reason of the special skill and knowledge he possesses is emphasized. The following four points are kept before the class: (1) a need to be supplied; (2) what materials are required; (3) what form or construction is best and necessary; (4) what tools, machines, and processes are required.

In this way the class considers and makes some problem illustrative of the furniture-maker, the ship-builder or carpenter, the bridge-builder,



etc. In the eighth grade the application of power in the service of these different vocations is taken up in a limited way in much the same manner.

No originality is claimed for this plan. It was suggested by similar efforts in other cities.

It is reasonably successful in the hands of a skilful and well-trained manual-training teacher. It is to be regretted we do not have more such teachers. The very limited time granted this subject in our schools ( $1\frac{1}{2}$  hours per week) is a serious obstacle in carrying out this idea successfully.

The industrial classes or centers opened this fall are best described by the circular which was sent home by the prospective pupil in order that his parents might understand fully the purpose of such a class:

### SEATTLE PUBLIC SCHOOLS

#### THE ELEMENTARY INDUSTRIAL SCHOOL

The Board of School Directors of the Seattle public schools have authorized the opening of three industrial schoolrooms or centers.

The purpose of this circular is to explain the aims, plan, and program of such a school; the requirements for admission; its relation to the high school; and some of the reasons which have lead to its establishment.

The Elementary Industrial School is intended to provide a course of study relating much more to the industries than the ordinary school program, and containing a more practical training for a class of boys and girls in the public schools who will be better suited by instruction which will the better and sooner prepare them for training in a definite vocation. In every school there are some boys and girls who prefer studies and exercises that employ their hands and who have greater aptitude in such studies than their fellows. They advance in their development by what they do rather than by what they hear. They are practical-minded. Many such children drop out of school as soon as the law permits, not from lack of ability, but because the school fails to fit its procedure to their particular needs. The establishment of these industrial classes is an attempt to fit the school to the wants of this class of pupils. Such classes are not substitutes for a trade school, but are intended to lead more quickly and surely to apprenticeship in business or trade, while not closing the door to further study either in high or special schools if the pupil desires to pursue such a course.

The plan provides distinct courses for boys and for girls and requires the separation of those taking it from the regular school classes in the building where it is maintained, because of the difference between the courses.

The school day, which is the same as for the regular classes, will be divided



into seven periods of forty minutes each, about half of the time to be spent upon the ordinary school studies, modified to suit the end aimed at in this plan, and the other half to be devoted to the industrial and household arts—shopwork and mechanical drawing for the boys, and cookery, sewing, design, and drawing for the girls.

#### OUTLINE AND EXPLANATION OF INDUSTRIAL COURSES

For Boys	For girls
English	English
Geography—History	Geography—History
Arithmetic	Arithmetic
Mechanical drawing	Drawing and design
Shopwork	Sewing
	Cookery

English will include reading, spelling, penmanship, letter-writing, and composition.

Geography will include map studies, climatic conditions and influences, industries and products, exports and imports, routes and centers of trade, the studies to be correlated as far as practicable with the work in shop and kitchen.

In history there will be a review of the influential events in the development of our country, including particular reference to the country's greatest characters and their achievements, and of the causes contributing to our present national standing. The purpose will be to give an elementary knowledge of the important facts in our history and to imbue with a patriotic desire to be serviceable.

In arithmetic the fundamental operations include fractions applied in shopwork and in local problems; percentage and interest; applications of measurements and mensuration. The purpose will be to secure accuracy in the use of figures and practice in their application to practical affairs.

*Industrial.*—The shop instruction will consist of work intended to give knowledge of materials and their sources and use; tools and skill in their use; methods of construction; problems in machine- and hand-work; acquaintance with factory and individual production; the use of preservatives, as paints, oils, etc.; discussions of the various vocations; visits to work under construction, to manufacturing and commercial establishments.

The industrial work for girls will consist of:

Plain sewing, garment cutting and fitting, repairing, household linens, fabrics used in the home, sewing machine, class talks and discussions regarding clothing, hygiene, style, costs, methods of manufacture, the sweatshop, trades and vocations for women.

Plain cooking, properties of foods, economy, table service, sanitation, laundry work, care of the home, etc. Actual conditions are possible for

purchasing and preparing a simple lunch daily and serving same to other pupils at noon at cost. Class talks upon related topics of home life and its obligations, domestic service, income and expenditure, etc.

Applied design in surface decoration as affected by material and service, the use of color, problems in making designs for notebook covers, belts, pillows, draperies, etc. The aesthetics of the home.

#### THE RELATION OF THIS COURSE TO THE HIGH SCHOOL

The rank of this course will correspond to the seventh and eighth grades of the usual school course, and will require two years for its completion. At the end of the two years pupils completing this course, who choose to continue their school work, may enter the high school upon an equal footing with the pupils entered from the regular course.

#### REQUIREMENTS FOR ADMISSION

This course is open to any boy or girl thirteen years of age or over, who has completed the equivalent of the present sixth grade, provided, the parent or guardian makes a written request upon the form provided for that purpose, and further that the principal of the school last attended by the pupil recommends that the pupil should take the industrial course.

As only three schools can be established at this time, the number of pupils will have to be limited to 72 boys and 72 girls. Do you wish to have —— attend one of these schools? If so, please sign your name below as indicative of your desire to have —— chosen.

These classes or centers are similar to the prevocational classes of Indianapolis and the industrial school of Cleveland, Ohio. They differ in their organization and somewhat in the character of the pupil encouraged to enrol in these classes. Each class requires three teachers. The classroom teacher, a woman, has the boys while the girls are with the special teacher in cooking and sewing, and the girls when the boys are with the special teacher (a man) in benchwork and mechanical drawing. She is thus able to center the academic work about the respective instruction of both boys and girls. The plan uses the usual manual-training equipment of the building and the class occupies one of the regular schoolrooms.

In this respect there is no isolation or separation from the social spirit of the schools. Class distinctions are avoided. The significance of this plan of establishing such classes in any school building where conditions warrant it is illustrated by the following quotation from a letter to the writer written by Mr. W. E. Roberts, supervisor of manual training, of Cleveland, Ohio.

We have another Elementary Industrial School in operation, differing from the first in that it is a part of a regular elementary school. There are about one hundred and forty advanced sixth-, seventh- and eighth-grade children in this department. My earlier experiences made it possible to start this work without a hitch, and it has moved forward smoothly from the very beginning. I am more and more convinced that the very great problem stirred up by Industrial Education, so called, is not as much an industrial problem as a problem of remodeling our elementary-school work. The new movement is going to accomplish what should have been accomplished by the manual-training movement.

In the selection of the pupils the judgment of the principal and teachers was relied upon to recommend those boys and girls who would profit the most by such a course.

This has been done so that the pupils in these centers are of an average in capacity compared to any other group. These classes have been in operation about six weeks and sufficient time has not elapsed to determine any definite results. The expression of both pupils and teachers signifies that the purpose for which these classes were established is being met.

The aim of the course is industrial cultural education by the industries rather than education for the industries.

This last will undoubtedly come later when the age is reached that is best for learning a definite vocation. The success thus far assures us that the educational needs of a considerable number of pupils who grow by what they do, motor-minded, is for the first time being adequately met.

A word only can be said regarding the evening-school work. There is a large and enthusiastic attendance in the cities of Spokane, Tacoma, Everett, and Seattle, particularly in those classes in the commercial and industrial lines, such as bookkeeping, typewriting, mechanical and architectural drawing, machine shop, foundry, forging, and benchwork for the men, and dressmaking, sewing, millinery, household science for the women. As evidence of the interest and practicality of the courses, the total enrolment in Seattle night high schools this year is 2,163, with 35 per cent in the industrial courses.

The Y.M.C.A. in the three leading cities, Seattle, Tacoma, and Spokane, have more or less equipment for industrial education and are meeting a certain need among the workers in the various industries, such as the building and machine trades. This work is done at night. The

Seattle association has excellently equipped shops for the machine- and wood-working trades, and has been carrying on for the past two years a co-operative half-time apprentice course, in day classes. Sixteen boys from three machine shops are now enrolled in this course. They are also successfully given day instruction in gas-engine construction and operation, and there is also a class in surveying for vocational preparation for the subordinate positions.

All of this work is, of course, under private auspices and subject to the usual tuition of Y.M.C.A. work.

The foregoing statements as to what is actually being done in this Northwest in industrial education is at best incomplete. Sufficient has, however, been said to indicate that this section of the country is awake to the needs of this field of educational effort.





# THE ELEVENTH YEARBOOK

OF THE

## NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

### PART II

### AGRICULTURAL EDUCATION IN SECONDARY SCHOOLS

BY

A. C. MONAHAN, R. W. STIMSON, D. J. CROSBY, W. H. FRENCH, H. F. BUTTON,  
F. R. CRANE, W. R. HART, G. F. WARREN

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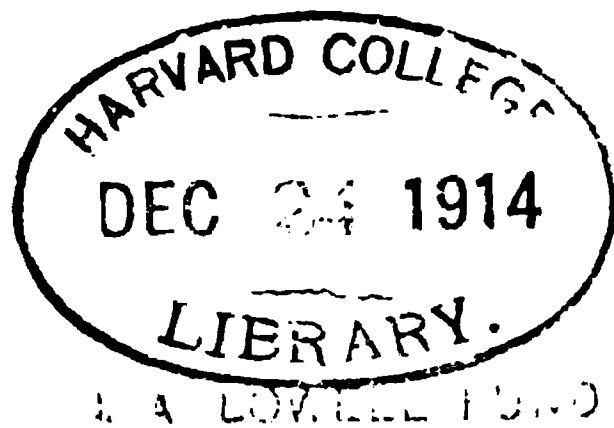
*Edited by S. CHESTER PARKER, Secretary*

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THIS YEARBOOK WILL BE DISCUSSED AT THE ST. LOUIS MEETING OF THE  
NATIONAL SOCIETY, MONDAY, FEBRUARY 26, 1912, 8:00 P.M.

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## PREFACE

This yearbook is planned to include accounts of what is actually being done in secondary agricultural education in various parts of the United States. The program represents an analysis of the typical experiments that are being undertaken, with some interpretation of each plan and its results. The contributors of the articles are specialists who are in intimate touch with the special phases of the work which they describe. To these men the National Society is indebted for their assistance and co-operation. The editor desires to express his special appreciation of the assistance of Mr. D. J. Crosby, of the United States Department of Agriculture, who organized the program and upon the urgent invitation of the editor agreed to prepare the third paper of the volume.



## I. TRAINING OF TEACHERS FOR SECONDARY COURSES IN AGRICULTURE

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A. C. MONAHAN

Specialist in Agricultural Education, U.S. Bureau of Education

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Some idea of the present demand for instructors qualified to teach agriculture in secondary schools may be derived from the fact that in the United States at present there are over a hundred special agricultural schools located in 17 different states supported in whole or in part by the states, and that agriculture was taught in 1910, as a separate subject in more or less complete courses, to over 37,000 pupils in 1,800 public and 140 private high schools, according to the reports submitted by these schools to the Bureau of Education. It is true that much of the instruction given in these schools is very elementary and is of an informational rather than a practical character. It is true also that the courses given are very brief in the majority of cases. On the other hand there are fully as many high schools giving four-year courses as there are special agricultural schools and the courses given by them are as vocational in their character as the courses given by the majority of the special schools. California, for instance, has 12 high schools with agricultural departments in charge of special agricultural teachers. All of these schools are supplied with land for instructional purposes varying from 3 to 27 acres in extent; all have available laboratories and several have greenhouses. Michigan has 11 high schools with four-year courses in agriculture, each taught by a graduate of the Michigan Agricultural College. Massachusetts, New York, Nebraska, Iowa, Ohio, Minnesota, Tennessee, and Vermont each has several such schools. One or more may be found in almost every state in the Union.

Of the special agricultural schools and the 2,000 public and private high schools teaching agriculture, only a very few besides the institutions giving four-year courses in the subject have instructors with a college or normal-school training in scientific agriculture, and a large percentage of the active teachers with such training have had no training in psychology or pedagogy. Probably no one factor has had greater influence in retarding the introduction of substantial courses in agriculture in all

high schools whose pupils are drawn in large numbers from farming districts than the shortage of properly qualified teachers. The demand for such teachers is indicated by the numerous inquiries received by the Bureau of Education for information concerning where men may be found qualified to teach agriculture in elementary and secondary schools. President B. I. Wheeler, of the University of California, in a recent letter to the Bureau, writes: "The demand for male teachers in the elementary schools of California is unprecedented. There has come at one and the same time a general desire for well-equipped teachers of science and the additional demand for men particularly equipped in agriculture." President J. A. Widtsoe, of the Agricultural College of Utah, says: "Up to the present a large majority of the graduates of this institution have gone out as teachers of agriculture, home economics, mechanic arts, and related subjects." President J. H. Worst, of North Dakota College of Agriculture, writes: "The demand for such teachers is far and away beyond our ability to supply. This, for the reason that the high schools generally of Minnesota and many in North Dakota are incorporating fairly strong courses in agriculture in the high schools."

It will be several years before the supply of men available as instructors in agriculture will be sufficient to fill the demand. Although the salaries paid are from 50 to 100 per cent higher than paid for instructors in other subjects in secondary schools, the state colleges of agriculture are finding difficulty in persuading men to qualify specially for teaching, because even these salaries are not equal to those paid in the agricultural industries to the graduates of these institutions. It is important, however, that properly trained men be obtained. Agriculture as a high-school science has not yet been developed into good pedagogical form and until such development has taken place a higher grade teacher is needed for the agricultural subjects than for any other subject in the high-school curriculum.

Men for this work need a liberal education in the general cultural subjects, and special training: first, in the physical and natural sciences, particularly in their relation to the science and art of agriculture; second, in technical and practical agriculture and farm practice; third, in rural sociology and agricultural economics; fourth, in general psychology and pedagogy; fifth, in special agricultural pedagogy including the history of agricultural and industrial education, the place and purpose of agriculture in the high school, the function of the agricultural high school,



special methods of teaching agriculture, and other similar aspects of agricultural teaching. The opportunity for such preparation is offered by several of the state colleges of agriculture; the opportunity for a part of such preparation is offered by a large number of these institutions.

There is in each state and territory one college of agriculture and mechanic arts, established under the provisions of the act of Congress of July 2, 1862, commonly known as the Land Grant Act, because by it there was granted to each state a quantity of public land equal to 30,000 acres for each senator and representative in Congress, the moneys derived from the sale of which have formed perpetual endowment funds, the income being used for the support of these institutions. Further aid was provided them by the acts of Congress of August 30, 1890, and March 4, 1907, so that now each state receives from the federal government, not including the income from the act of 1862, an annual appropriation of \$50,000 exclusive of the money paid for agricultural experiment stations. In 17 southern states separate institutions for Negroes have been established and the federal appropriation is divided between the colleges for white students and these institutions.

While the agricultural work of these colleges, until the year 1907, was along technical lines almost exclusively, many of their graduates have become special teachers of agriculture in secondary schools with no other training than their technical agricultural courses and the other subjects in their general college course. More recently has come the demand for men trained specially for teaching, and it was largely in response to this demand that Congress in 1907, in the act for the benefit of state colleges of agriculture and mechanic arts, included the proviso that part of the money "may be used for the special preparation of instructors of the elements of agriculture." This measure is known as the Nelson amendment, as it is contained in an amendment to the appropriation bill for the Department of Agriculture. Under its provisions each state is now receiving for the benefit of its college of agriculture and mechanic arts the sum of \$25,000, included in the \$50,000 mentioned above, all or part of which may be used for the special preparation of teachers of the elements of agriculture. It is held by the Bureau of Education, in whose hands the administration of the federal funds for these institutions is placed, that this language authorizes the expenditure of these funds for providing special courses in agricultural pedagogy but not in general pedagogy.

As a result of the measure 36 of the 50 agricultural colleges, not including the separate institutions for the colored race, now offer some opportunities to their students to fit themselves as special teachers of agriculture for secondary-school work. Twelve institutions offer only certain courses in general education elective to students in agriculture, 14 offer courses in general education and special courses in agricultural education, 1 offers courses in agricultural education only, 7 that have departments of education allow students in these departments to elect courses in agriculture, 9 offer prescribed four-year courses for teachers, and 3 offer special one-year courses to persons preparing to teach agriculture who have already had the equivalent of the general college education. Several others will accept properly qualified persons as special students. The accompanying table gives a list of the state agricultural colleges that are offering special opportunities for preparing teachers of secondary-school agriculture and indicates which plan is followed by each institution.

A description of the special features of the pedagogical training for teachers of agriculture in all of the land-grant colleges cannot be given here. Enough, however, are included to illustrate the character of the courses offered. The institutions selected are from widely distributed parts of the country and include examples of several different methods of arrangement of this special work. The courses and arrangement of the work in the other institutions are for the most part similar to the ones described here. A statement prepared by the writer regarding the work of each land-grant college in the preparation of teachers is given in the chapter on agricultural education in the *Report of the Commissioner of Education*, for 1911.

The University of California recommends for the state teachers' certificates as special teachers of agriculture only students who have completed in their college course 12 semester-hours work in education and at least 27 hours in agriculture and agricultural education. The term semester-hour is used here and in following statements to mean one hour per week for one semester or half-year; a 4 semester-hour course therefore is the equivalent of 4 recitations a week for a semester. Seven distinct courses in agricultural education are offered, two of which only are arranged especially for students preparing for high-school work. "Agriculture in Secondary Schools" is a two-hour course and treats of the

STATE AGRICULTURAL COLLEGES OFFERING SPECIAL  
OPPORTUNITIES FOR PREPARING TEACHERS OF  
SECONDARY-SCHOOL AGRICULTURE

	Agricultural Students May Elect Courses in General Education	Education Students May Elect Courses in Agriculture	Special Elective Courses Offered in Agricultural Pedagogy	Prescribed Four-Year Course Offered for Teachers of Agriculture	Special One- Year Course for College Graduates Preparing to Teach Agriculture
Alabama Polytechnic Institute, Auburn, Ala.....	..	..	×	..	..
University of Arkansas, Fayetteville, Ark.....	×	..	..	..	..
University of California, Berkeley, Cal.....	×	×	×	..	..
Colorado Agricultural College, Fort Collins, Colo.....	×	..	..	..	..
University of Florida, Gainesville, Fla.....	..	..	..	×	..
Georgia State College of Agriculture, Athens, Ga.....	×	..	..	..	..
University of Idaho, Moscow, Idaho.....	×	..	×	..	..
University of Illinois, Urbana, Ill.....	×	..	×	×	..
Purdue University, Lafayette, Ind.....	×	..	..	..	..
Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa.....	×	..	×	×	..
Kansas State Agricultural College, Manhattan, Kan.....	×	×	..	..	×
State University, Lexington, Ky.....	..	..	..	..	..
Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La...	..	×	..	..	..
University of Maine, Orono, Me.....	×	..	..	×	×
Massachusetts Agricultural College, Amherst, Mass.....	×	..	×	..	..
Michigan Agricultural College, East Lansing, Mich.....	×	..	×	..	×
University of Minnesota, Minneapolis, Minn.....	×	..	×	..	..
Mississippi Agricultural and Mechanical College, Agricultural College, Miss.....	..	..	×	×	..
University of Missouri, Columbia, Mo.....	×	..	×	..	..
University of Nebraska, Lincoln, Neb.....	×	..	×	..	..

**STATE AGRICULTURAL COLLEGES OFFERING SPECIAL  
OPPORTUNITIES FOR PREPARING TEACHERS OF  
SECONDARY-SCHOOL AGRICULTURE—Continued**

	Agricultural Students May Elect Courses in General Education	Education Students May Elect Courses in Agriculture	Special Elective Courses Offered in Agricultural Pedagogy	Prescribed Four-Year Course Offered for Teachers of Agriculture	Special One- Year Course for College Graduates Preparing to Teach Agriculture
University of Nevada, Reno, Nev.....	×	..	..	..	..
Rutgers College, New Bruns- wick, N.J.....	×	..	..	..	..
New Mexico College of Agricul- ture and Mechanic Arts, Agricultural College, N.Mex.	×	..	..	..	..
Cornell University, Ithaca, N.Y.	×	..	..	×	..
North Dakota Agricultural Col- lege, Agricultural College, N.Dak.....	×	×	..	×	..
Ohio State University, Colum- bus, Ohio.....	..	×	×	..	..
Oklahoma Agricultural and Mechanical College, Still- water, Okla.....	×	..	..	..	..
Oregon Agricultural College, Corvallis, Ore.....	×	..	×	..	..
Pennsylvania State College, State College, Pa.....	×	..	..	..	..
Rhode Island State College, Kingston, R.I.....	..	..	..	×	..
South Dakota College of Agri- culture and Mechanic Arts, Brookings, S.Dak.....	×	..	..	..	..
University of Tennessee, Knox- ville, Tenn.....	×	..	..	×	..
University of Vermont and State Agricultural College, Burlington, Vt.....	..	..	..	×	..
State College of Washington, Pullman, Wash.....	×	..	×	..	..
West Virginia University, Mor- gantown, W.Va.....	×	..	×	..	..
University of Wisconsin, Madi- son, Wis.....	×	×	×	..	..
University of Wyoming, Laramie, Wyo.....	×	..	..	..	..

\* Two-year course in nature-study and agriculture.

aims, organization, and methods of agriculture as a high-school subject; "The Practice of Teaching Agriculture" is a graduate course and includes lectures, readings, and conferences, together with school observation and

practice of teaching. A course in the history of agriculture and two courses in farm management, including some work in rural economy, are given in the agricultural college and are recommended especially for students preparing for teaching. The twelve hours in education include the history of education, the principles of secondary education, either educational methods or school management, and the practice of teaching, a graduate course taken in connection with the course in the practice of teaching agriculture.

The University of Illinois, while allowing agricultural students to elect courses in the department of education, offers also a four-year prescribed course for prospective teachers of agriculture which includes 61 hours agriculture, 31 hours allied sciences, 17 hours general cultural subjects, 6 hours in agricultural education, and 8 hours in general education. The work is divided as follows, the figures indicating the number of hours devoted to the subjects:

Agronomy.....	21	Entomology.....	2½
Animal husbandry.....	16½	Zoölogy.....	5
Dairy husbandry.....	8	English.....	4
Horticulture.....	15½	Rhetoric.....	9
Secondary-school agriculture...	6	Economics.....	2
Thremmatology.....	2½	Education.....	8
Botany.....	6	Library science.....	2
Chemistry.....	15		

The course in secondary-school agriculture consists of a study of the features of agricultural science best adapted to high-school conditions; the best order and methods for their presentation; suiting the course and instruction to the special interests and needs of each school community; and the planning and execution of laboratory and field work. The courses in education include "the principles of education" and "the principles of secondary education." The essential difference between this course and that offered by the University of California is in the amount of technical agriculture required, the Illinois institution requiring 61 hours work against 25 in California. Illinois gives 6 hours work in secondary-school agriculture, California 2 hours, while in general education Illinois gives only 8 and California 12. It should be noted, however, that part of the required work for the teacher's certificate at the University of California is graduate work, while the courses listed above given at the University of Illinois are all undergraduate.

The University of Maine also offers a four-year prescribed course which includes 50 semester-hours of agriculture, 11 hours education, and 89 hours English, mathematics, sciences, and free electives. The course in education includes 6 hours in the history of education, 3 in the foundations of education, and 2 in child-study. The work in agriculture is all in the last three years of the course and includes agronomy, animal industry, horticulture, forestry, farm management, veterinary science, agricultural chemistry, and bacteriology. The amount of technical agriculture coincides more nearly with that given by the University of Illinois, but at the University of Maine no courses are given to bridge the gap between these courses and the professional courses in education, as is done at the University of Illinois and at the University of California. In other words, the student who has completed the course at the Maine institution must work out his own agricultural pedagogy and methods of teaching.

A better plan is followed by the Massachusetts Agricultural College, where a department of agricultural education was organized by direction of the state legislature in 1907, just before the passage of the Nelson amendment by Congress. The department has but one sort of students to deal with, those preparing to become special teachers of agriculture; therefore it can devote its entire energy to the special needs of these men. Six courses are given by the department, all open as junior and senior electives: general psychology, 3 semester-hours; history and philosophy of vocational education, 3 hours; general methods of teaching and special methods in agriculture, 2 hours; teachers' agriculture, 3 hours; seminar in education, 4 hours. The teachers' agriculture consists of a selection and review of such parts of the technical courses in agriculture, horticulture, and the biological and physical sciences as are adapted to the work of the public schools; the seminar in education is arranged for the special study of such topics as legislation and agricultural education, and the place and value of agricultural science in school courses. A department of rural social science gives 22 semester-hours elective work of special value to men preparing to teach in rural communities: agricultural industries and resources, historical and comparative agriculture, co-operation in agriculture, agricultural economics, and rural sociology. The teacher entering this college takes the prescribed course for two years in common with all other students. This includes an elementary agriculture and horticulture, 20 hours in physical

and natural sciences, 12 hours in English, 10 hours in mathematics, and 14 hours in French or German. In the last two years 3 hours are required in English and in political science. The student preparing to teach must take all courses in education and electives enough to make at least 17 hours of work each semester. The electives must be taken largely from courses in agriculture, horticulture, forestry, and the closely allied sciences, and from the courses in the rural social sciences. The graduate of this department has had therefore in his four-year course 42 hours in general cultural subjects, 20 hours in physical and natural sciences, 15 hours in agricultural education, and 67 hours electives chosen from courses in technical agriculture, horticulture and forestry, the physical and natural sciences, and the rural social sciences. As the institution is an agricultural college with no mechanic arts college or liberal arts college included, all courses offered are taught from the agricultural viewpoint and closely correlated with the technical work in agriculture.

A prescribed four-year course is offered in the School of Education of the University of Tennessee. The course includes even less agriculture than the University of California, 18 hours of work only being prescribed. This includes courses in agronomy, horticulture, animal husbandry, and dairying. Fifteen hours of work is required in education, the courses including psychology and philosophy, the history of education, and the science and art of teaching. In addition to this arrangement students in the regular agricultural course may elect a few courses in education in their Junior and Senior years.

The University of Missouri was one of the first of the land-grant colleges to make special provisions for men desiring to fit themselves for teaching agriculture. Now provision is made for those intending to become general-science teachers with a small amount of training in agriculture, and for those intending to prepare as special teachers of agriculture. The students in the first of these classes take all their professional work including agriculture in the School of Education; those in the second class take their technical courses in agriculture in the Agricultural College and their professional work in education in the School of Education. The School of Education offers three agricultural courses elective to all students preparing to teach. The "Administration of Agricultural Education" is a course dealing largely with the modern movements and methods in agricultural education from the standpoint of the superintendent of schools. No work in agriculture is a prerequisite. "Soils and Plant Culture," and "Animal Husbandry" are two



courses covering the fundamental principles of these subjects and are arranged for prospective teachers who have had no other courses in agriculture. To secure a life certificate as a special teacher of agriculture candidates must include in their four years' work, in addition to the required subjects in the School of Education, a minimum requirement of 15 hours in agronomy, animal husbandry, and horticulture from courses offered in the Agricultural College for the Bachelor's degree.

Mississippi Agricultural and Mechanical College has organized a "School of Industrial Education" which offers a special four-year course leading to the Bachelor's degree in preparation for teaching agriculture or the mechanic arts. Students receive instruction in the languages, mathematics, history and civics, chemistry, physics, biology, geology, psychology, history of education, logic, ethics, sociology, besides technical courses in agriculture given in the department of agriculture. A course called "A Study of the Agricultural High School" is offered for advanced seniors and graduate students. This course attempts to give the student a true conception of the kind of education the agricultural high school is intended to provide, and a full understanding of the service it is to render the community at large. It attempts also to give the student a practical knowledge of the most approved methods of scientific agriculture. A model farm connected with the School of Industrial Education is conducted to illustrate the proper function of the agricultural high-school farm. The institution is developing a one-year post-graduate course which will include work in general and agricultural education designed to fit its students for filling positions as principals of agricultural high schools. The study of the agricultural high school will be continued, and the men will be given practical work on the "model agricultural high-school farm" and practical teaching in the working boys' course offered by the college. This additional year's work is very desirable for men intending to teach, because the college is obliged to accept in its undergraduate courses a large number of men who have not had the advantage of a complete high-school course.

Several of the land-grant colleges have made provisions for prospective teachers of agriculture properly qualified in other respects to become special students in agriculture or agricultural education. The Michigan Agricultural College allows graduates of other recognized colleges and of state normal schools who have had at least two years' experience in teaching to select technical courses in agriculture, entering with regular



classes and taking the subjects in the same manner and at the same time as the regular students. The courses selected may be from those given in any year of the college course, but must be approved by the classifying officer. A similar opportunity is offered by the Kansas Agricultural College. The University of Maine offers a prescribed one-year course open to college graduates, high-school teachers with at least two years' experience, and normal-school graduates who have taught at least three years. The course includes agricultural botany, 2 hours; agricultural chemistry, 4 hours; agricultural economics, 2 hours; elementary veterinary science, 5 hours; economic entomology, 2 hours; bacteriology, 1 hour; agriculture, 34 hours; horticulture, 15 hours; forestry, 2 hours; school gardening, 1 hour; and education, 2 hours.

The work in agriculture in the normal schools is intended in all but a few cases as preparation for the required work in the elementary schools. Agriculture is a required subject in the common schools of 12 states, and in the rural schools of 5 others, and is required for teachers' certificates in 14 states. This has forced it into the curriculum of the normal schools of the states where the subject is required and has aided in its inclusion in the curriculum of normal schools in other states. During the past year agriculture as a separate subject, in more or less complete form, was taught in 104 state normal schools and in the 24 county training schools of Wisconsin. Many of these institutions have graduates of agricultural colleges for instructors in agriculture. The majority offer brief courses extending from 4 to 12 weeks. Many offer a full year's course and a few a course of greater extent.

The State Normal School at North Adams, Mass., offers a three-year course in agriculture as well as shorter courses in school and home gardening, agriculture, horticulture, and nature-study. The work is arranged and conducted with the co-operation of the State Agricultural College, which has for the past three years added to the faculty of the normal school an instructor and supervisor who has given a portion of his time to instruction at the normal school and to supervision at its three training schools, a second portion to the promotion of elementary agriculture and nature-study in the schools of Berkshire County, in which the normal school is located, and the remainder to instruction at the college in agricultural education. The three-year agricultural course includes all of the work in English, psychology, and pedagogy included in the regular two-year normal course. A graduate of the regular normal course, or a

college graduate, may take the agricultural work given in the three-year course in one year. The work is intended to prepare special teachers of agriculture for supervisory work or for teaching in secondary schools. It includes the following courses:

I. **AGRICULTURE**—Soils. Plant life, structures, functions, and diseases. Fertilizers, tillage, crops. Hotbeds, cold frames, and greenhouses. Farm live stock, poultry, bees. Dairying.

Horticulture—Flower and shrub gardens. Window gardens. Propagation, pruning, and cultivation. Orchards and small fruits. Forestry.

Insects and birds—Economic importance. Control of injurious insects.

Farm buildings and machinery.

Sanitary science.

(Agricultural physics and chemistry involved in preceding topics.)

Rural social science.

II. **NATURE-STUDY**—Its content and relation to science, literature, and vocational work.

III. **MANUAL TRAINING**—Carpentry, cabinet work, forge work, assembling farm machinery.

Drawing—Free-hand and mechanical, structural and decorative design, use of color, farm and building plans.

IV. **ENGLISH**, etc.

V. **PEDAGOGY AND PSYCHOLOGY**.

The Fourth District State Normal School at Springfield, Mo., offers two elementary courses and one advanced course. The elementary courses together extend through five terms five hours a week, and include a study of plant life, soils and soil fertility, farm crops, grain judging, enemies and diseases of plants and their control, crop rotation, feeds and feeding, live stock, poultry, dairying, and general farm management. The advanced course is a two-year course and includes one term's work in each of the following: dairying, animal husbandry, orcharding, farm management, poultry raising, and gardening. The institution has established a two-year agricultural high school in which the students devote one-fourth of the time to agriculture or domestic science, and one-eighth of the time to pedagogy as applied to rural-school teaching. The course is intended to prepare young men and women for rural-school work, and graduates will receive a state teacher's certificate to teach in rural schools. The institution owns a model farm and good equipment for agricultural instruction. The instructor in agriculture is a man trained especially for teaching that subject.

The State Teachers College of Colorado, at Greeley, maintains a department of agricultural education offering nine courses. The work is arranged especially for rural teachers, and a special diploma in elementary agriculture is given to students completing the course. The institution is equipped with a farm, nursery, gardens, greenhouse, and stables. The instructor is a graduate of an agricultural college. The courses given by the department are as follows, each being a sixty-hour course: Nature-study; elementary agriculture; school gardening; soils and crops of the farm; animals of the farm; dairy industry and poultry husbandry; horticulture on the farm; the farm home; and rural sociology and the rural school.

Among separate institutions for the colored race two are offering excellent opportunities to prepare for teaching agriculture in secondary schools—Hampton Normal and Agricultural Institute at Hampton, Va., and Tuskegee Normal and Industrial Institute at Tuskegee, Ala. The Hampton Institute offers a three-year vocational course in agriculture and a special one-year course to students who have completed the vocational course and are preparing to teach agriculture. The one-year course includes the chemistry of soils, manures, and fertilizers; chemistry of dairy products; fermentation; milk testing; geology in its relation to soil formation; biology in its relation to plant and animal life; farm engineering, including a study of farm machinery and structures; and farm physics, including soil physics, the relation of the atmosphere to agriculture, climatology, and the organic life in the soil and air. Students taking this course are required to take also the teaching course in the training school where they are required to teach classes in agriculture under a critic teacher. Upon the completion of both courses they receive a special diploma.

At Tuskegee students in the agricultural department preparing to teach may elect a Junior year course in elementary psychology in its relation to teaching and a Senior course in the history of education and methods of teaching. These courses in education may be taken as post-graduate work by students who have completed the undergraduate work at Tuskegee or its equivalent elsewhere.

## II. THE VOCATIONAL AGRICULTURAL SCHOOL

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### WITH SPECIAL EMPHASIS ON PART-TIME WORK IN AGRICULTURE

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R. W. STIMSON

Agent for Agricultural Education, Board of Education of Massachusetts

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#### DEFINITIONS

Within a year or two noteworthy attempts have been made to define vocational education. Vocational education, in the usage of the state of Massachusetts, includes all forms of specialized education, the controlling purposes of which are to fit for useful occupations. Agricultural education, as a phase of this subject, means that form of vocational education which fits for the occupations connected with the tillage of the soil, the care of domestic animals, forestry, and other wage-earning or productive work on the farm.

The National Society for the Promotion of Industrial Education, at its last annual meeting, adopted the report of a sub-committee which had been directed to give careful consideration to Senate Bill No. 3, now pending in the Senate of the United States, introduced by Senator Page, of Vermont, and to a similar antecedent measure known as the Davis-Dolliver Bill. That committee reported favorably on the general proposition of federal aid for vocational education, including agricultural, and in order that its recommendations might be put in the most constructive form, the committee drafted, by way of suggestion, a measure which seemed to it to incorporate the principles which should prevail in the promotion of vocational education with federal aid. In the measure drafted, sec. 1, under the heading, "Construction," includes the definitions of vocational education and agricultural education above given.

We have, then, something like a general agreement by those who are advocates of vocational education throughout the country, in favor of the definitions above given; and in this particular portion

of the symposium on secondary agricultural education it will be understood that the above definitions are adopted.

It is understood, further, that in this division of the symposium, congressional district schools, county schools, and state schools in undivided districts should be discussed. It has been suggested, moreover, that perhaps the most vital problem in the whole movement at present is the problem of making agricultural instruction really vocational, and that therefore the major portion of this part of the symposium would perhaps better be devoted to discussing ways and means of making agricultural education vocational.

#### SOURCES OF INFORMATION

A study of legislation upon industrial education in the United States, including agricultural, is now available in *Bulletin No. 12* of the National Society for the Promotion of Industrial Education. The *Report of the Michigan State Commission on Industrial and Agricultural Education*, December, 1910, contains a report of the sub-committee on rural and agricultural education, pp. 18 to 32, in which are discussed the state secondary school of agriculture, the congressional district secondary school of agriculture, and the county school of agriculture, the discussion being based on a careful study of representative institutions of these several types, and supplemented by appendices giving statistics and typical courses of study of these several types of schools. It is understood that this report may be had by members of the National Society for the Study of Education.

Of the congressional district agricultural schools, those of Georgia may, perhaps, be taken as representing an approved type. Two reports of those schools have been published as bulletins of the University of Georgia, and doubtless may be had by members of the Society.

The county schools of agriculture and domestic economy in Wisconsin form the subject of *Bulletin No. 242*, Office of Experiment Stations, United States Department of Agriculture. This bulletin was issued November 9, 1911, and was prepared by Mr. A. A. Johnson, principal of the La Crosse County School of Agriculture and Domestic Economy, and recently appointed superintendent of the new Milwaukee School of Agriculture and Domestic Economy. This bulletin, of course, is available for general distribution. It gives particulars regarding all of the Wisconsin county schools, including statistics,

courses of study, half-tone illustrations, and the Wisconsin law providing for the establishment and maintenance of the schools. It appears to be needless, therefore, to repeat in the brief compass allowed in this paper facts and figures so readily available in the publications above referred to.

The committee in charge of arranging the program of the symposium intended that the discussion of state schools in undivided districts should have reference to such agricultural schools as the three in New York and those in Massachusetts, California, and Minnesota. Though not originally parts of state systems of agricultural schools, they might become such if systems should eventually be established. The United States Department of Agriculture, in its *Circular No. 97* of the Office of Experiment Stations, issued May 23, 1910, gave a complete list of the institutions in the United States giving instruction in agriculture. There is great diversity in equipment and methods among the state schools in undivided districts. An attempt has been made to secure literature, descriptive of these schools, from each. Some personal visits have been paid and information from those who have visited the schools has been sought.

It is announced that the chapter on agricultural education from the annual report of the United States Commissioner of Education for 1911 will be ready for distribution about December 1, with contents as follows: a digest of important legislation in the various states during the past year; a complete summary of the status of instruction in elementary and secondary agriculture in each state; a description of some types of secondary agricultural schools; and a summary of the work of the state agricultural colleges in preparing special teachers of agriculture for secondary schools.

The Yearbook of the United States Department of Agriculture has for a number of years contained reports prepared by Mr. D. J. Crosby, Specialist in Agricultural Education, of progress in the establishment of secondary agricultural schools, their equipment, their work, and their control and support.

#### CONGRESSIONAL DISTRICT AGRICULTURAL SCHOOLS

On the whole, perhaps we cannot do better than to accept the Georgia schools as good representatives of the congressional district type. The Georgia schools were manifestly intended to be strictly vocational.

The schools are made, by the act providing for their establishment and maintenance, branches of the State College of Agriculture, a department of the University of Georgia, but judging by standards of certain other states, the university has been required by the law rather to adjust itself to these schools than to require the schools to adjust themselves to it.

A very practical course of study is provided, and is made uniform, in general, for all the schools. It is essentially an English, scientific, and practical course. From it all other languages than English are omitted. The report of a committee which suggested foreign languages as optional studies was rejected. The law distinctly states that—

The course of study in state schools shall be confined to the elementary branches of an English education, and practical treatises or lectures on agriculture in all its branches and the mechanic arts, and such other studies as will enable students completing the courses to enter the Freshman class of the State College of Agriculture on certificate of the principal.

The regulations of the schools provide that the school days be so arranged as to assure at least three hours a day of classroom work in agriculture and related sciences, in mathematics and history, and at least three hours a day on the farm or in the laboratory or shop, the hours in actual farm work to be regulated by the exigencies of the farm; the program being such as to provide for the alternation of work and study among the classes morning and afternoon, thereby securing continuous operation of the farm and the shop. Each school was required to have at least 200 acres of land.

It was provided that an account of all receipts from the sale of products of the farm or shop, which were not consumed, should be kept, and one-half of said receipts for each year should be set aside as a fund to pay the students. It was further provided that each pupil, having performed to the satisfaction of the principal, his duties for an entire school year, receive his pro rata of the said fund, the amount going to each pupil not to exceed \$100, and the balance, if any, to be placed in the general fund of the school.

One of the most important sections of the act provides that after the first buildings are erected, before the opening of such schools, which shall be only such as are absolutely necessary for temporary use, all work on, in, and about said schools, or on the farm, or on or in the barns or shops connected



with said schools, whether it be farming, building, care of stock, or work of different kind, shall be performed exclusively by the students of said schools, under such regulations for the proper division and alternations in such work as may be provided by the trustees.

The trustees, in ruling under the above act, have even gone so far in providing for the attendance of older men as to decree that "no one shall be allowed to enter who does not take the required practical work; if only literary work is desired, they should go elsewhere."

The fifth section proposed for the control of these schools suggests the way by which the regulation that work on the farm shall be done by the students may be carried out, viz., that

One-fourth of the students, or such number as the principal may determine as necessary to continue the operation of the farm and shop, be required to remain on the farm during the vacation, and for work required during this time, the students be given fair compensation. Students of the third and fourth year may be given acre plots for individual cultivation, or small farms for supervision, the profits to be their own; the same, however, to be first applied to payment of their dormitory or other expenses.

From the above it will be seen that strong emphasis is laid in the Georgia schools upon productive work actually performed by students, and that the method is that of providing on the school premises sufficient land for enabling this productive work to be done.

The manual labor of the students is divided into two kinds: (1) Instructive labor in practicums in the laboratory, field, shop, and home under the guidance of the instructor for nine hours a week, for which no other compensation is given than the skill acquired or instruction received as in any other school. (2) The uninformative labor for nine hours a week on the farm, in the dormitories, shop, or elsewhere for the primary benefit of the school in its maintenance, and only secondary in its instructive benefit and not necessarily under the instructor. The latter is credited on boarding expenses each month. Each pupil is given fifteen hours a week of classroom instruction, nine hours a week of laboratory, field, shop, and home instruction, or twenty-four hours of instruction and nine additional hours for the support of the school and incidentally of practical benefit to the pupil. Thus thirty-three hours of the pupil's time each week is assigned or a little over five hours a day in head and hand work. It is stated that this gives ample time for study and recreation.

The second annual report of the University of Georgia, November, 1911, p. 29, shows that the income from the farms varied from \$395



in the ninth district to \$3,716 in the first district; the total farm products for the eleven districts being \$22,832. There is every indication, furthermore, that more rather than less emphasis is to be put on the actual productive farming enterprises of the students carried out on the school premises. With a proper correlation of classroom and field instruction, these schools should afford vocational agricultural training of a very high order.

The course of study in the Georgia schools extends over four years. The remark made above, that the law providing for the establishment and maintenance of these schools rather required the university to adjust itself to the schools, than the schools to adjust themselves to the university, is justified by the fact that boys without training in languages, and with only such training as is prescribed for carrying out the regulations above stated, must be admitted to the College of Agriculture. Admission, moreover, must be without examination and on certificate of the principals of the several schools.

#### COUNTY AGRICULTURAL SCHOOLS

Of county agricultural schools, perhaps we cannot do better than to accept those of Wisconsin as fairly representative. These schools are spoken of both in *Bulletin No. 242*, United States Department of Agriculture, Office of Experiment Stations, and in the *Report of the Commission upon the Plans for the Extension of Industrial and Agricultural Education*, Madison, Wis., 1911, as *trade schools*. The last named report, p. 122, says "these are essentially trade schools and should always be maintained as such." Foreign languages are omitted. Other significant omissions are algebra and geometry.

*Bulletin No. 242* gives the following as points in common for all of the schools:

The county agricultural schools of Wisconsin are co-educational.

The course of study covers a period of two years—eight months each.

Each school receives support from the state, amounting to \$4,000 a year.

All schools require for entrance that students shall have completed work equal to the eighth grade.

All schools admit students from outside their respective counties.

Institutes of various kinds are conducted at each of these schools.

Again *Bulletin No. 242* gives the following as some ways in which these schools help the farmers:

Prepare plans for farm buildings.

Make suggestions for remodeling old buildings.

Build forms for and supervise the construction of cement silos, watering troughs, and similar structures.

Test all kinds of dairy products.

Assist in the selecting of farm animals.

Plan drainage systems.

Test seeds for germination.

Test cattle for tuberculosis.

Test soils.

Recommend systems of rotation.

Half-tone illustrations show classes of students removing stumps with dynamite; raising the form for and constructing a concrete silo; operating the level; pipe fitting; forging; carpentering; road constructing with a road machine and studying various types of gasoline engines. The illustrations show the boys in overalls and evidently acting as participants in the various operations.

Each county school has some land, but repeatedly it is stated that this land is used for experimental and demonstration purposes. No emphasis is laid on the fact that no possible or actual participation is allowed the students in actual productive farm work on the school premises. Moreover, in the list of ways in which these schools help the farmers, the things done appear to be done by members of the staff and not by students in the school. Students evidently use school time for study and for observation, and dependence is placed upon the ability of the students on graduation to apply the instruction they have received in the school for their own benefit.

The Wisconsin Commission upon "Plans for the Extension of Industrial and Agricultural Education" found that the county agricultural schools "serve a class of people the country and high schools fail to reach," that "their value has been clearly and unquestionably demonstrated"; and it recommended that the limit of state aid for each be raised to \$6,000 a year, "but with the provision that if more than \$4,000 be paid by the state that the county shall contribute not less than an equal amount." The original limit for each had been \$4,000 a year from the state.

The trade school, or distinctly vocational character of the instruction given by these schools, was further emphasized by the proposed

relationship of these schools to the university. The Commission recommended that the University of Wisconsin "establish in the College of Agriculture a 'continuation course' for graduates of county agricultural schools." Thus it is seen that the kind of training here considered is sharply differentiated as to field, content, and methods from the ordinary high, or college preparatory school, on one hand, and, on the other hand, from the training for professional service provided in the regular classes of the college of agriculture.

#### STATE AGRICULTURAL SCHOOLS IN UNDIVIDED DISTRICTS

In elaborateness of land, buildings, equipment, and staff a pretty sharp line can be drawn between two kinds of State Schools in states which have not yet been divided into districts for the development of vocational agricultural schools. These are (1) schools operated in connection with the state colleges of agriculture, and (2) those which are not.

*At state agricultural colleges.*—Without giving a complete list, it may be well to note here that vocational agricultural schools are now operated in connection with, and upon the premises of, the colleges of agriculture in Minnesota, Montana, Colorado, West Virginia, New Hampshire, and Connecticut.

In such cases the work of the school is primarily practical. It does not differ materially from that of the congressional district, or county agricultural school, in entrance requirements. The courses vary in length from six to nine months a year and from two to four years.

When the demands for vocational agricultural training are sufficiently limited so that a single school may suffice for a state, it would seem to be highly advantageous that the school should be located at the state agricultural college. Duplication of expenditure for land, buildings, and equipment would thus be avoided. The students might be trained in part by assistants, but first or last would become acquainted with, and feel at first hand the influence of, the state leaders in agricultural research and education. In most cases the agricultural college teaching staffs might be expected to adapt their school instruction to the real needs of their school students, as distinguished from their students of college grade. Certainly schools so located have stood high in the estimation of the people. President Northrup once said that there were people in Minnesota—not a

few—in whose minds the School of Agriculture stood for the whole University.

*Apart from state agricultural colleges.*—In other states, New York and Massachusetts among the number, it has been considered inadvisable to maintain vocational agricultural schools on the premises of, and in immediate connection with, the state colleges of agriculture. In these cases the resources of the schools are more or less limited.

The courses of these schools vary greatly in length and character. Some differ but slightly from the state agricultural colleges of earlier days. Others maintain two-year courses of six or of eight months each, from which have been omitted such subjects as algebra, geometry, and all instruction in languages excepting English. Some utilize a limited amount of land for demonstration and experimental purposes. Others provide for more or less practical farm work on the school farms.

In fact, these schools are proving to be most interesting and valuable experiment stations in methods of vocational agricultural training. Perhaps it is not too much to say that out of the very weakness of some of these schools, in land and equipment, is coming the best strength of the whole movement for a type of agricultural training which shall be genuinely vocational. That is to say, vocational efficiency at the end of a course of training appears to bear no directly proportionate relation to the comparative amounts of money invested in the school plants and their cost of operation; and, similarly, it appears to depend more on points of view and on methods among the various staffs than upon faculty numbers and salary budgets.

Productive work of a high order of efficiency is coming to be considered the real test of all systems of vocational education of secondary grade. Particularly in vocational agricultural education it is coming to be accepted that the training must be such as to develop both skill and managerial ability. The competent farmer must be, not only expert in the varied technique of his calling, but also a sound and progressive business manager.

Neither skill nor business ability can be learned from books alone, nor merely from observation of the work and management of others. Both require active participation during the learning period in productive farming operations of real economic or commercial importance. A masterful, constructive imagination may accomplish much for him who possesses it; and for his needs books and observation may finally

result in vocational efficiency. The difficulty is that such powerful imagination is so rare as to constitute him who has it a genius, far removed from the common run of boys fourteen to eighteen or twenty years of age who live on farms, who expect to follow farming for a living, and whose training is not likely to extend beyond that afforded by the vocational agricultural school.

In general, if there is a defect in the large agricultural schools which boys must leave home in large numbers to attend, and which in order to secure adequate attendance to justify their cost must, apparently, limit their training to six or eight fall and winter months, it is the defect of putting too great reliance upon books and observation, to the exclusion during the intensive learning periods of active participation in the type, or types, of productive farming the boys intend to follow after graduation. Too great, one may almost say in the cases of many of the boys, fatal reliance is put on the ability of the students, once well grounded in sound theory, to put that theory into successful practice on their own farms, alone and unaided.

Even if the large school undertook to put its plant and equipment to the strictest possible productive farming uses of a profitable commercial character, and to induct its students into its aims and to school them in its methods, its efforts would be more than likely to break down through sheer weight of numbers. School farms at present can hardly be claimed to be thoroughgoing commercial farming concerns. The most flattering school photographs, where the aims of the school are most emphatically practical, show by far too few actual participants, by far too many spectators. To see the thing done, however good the demonstration, is not to do it one's self. To participate in the carrying out of an enterprise planned and ordered by another, by even an agricultural school instructor, may leave one little better than a gang-laborer. The pittance paid per hour, where any pay at all is given, can hardly, as an incentive to keen interest and alert action, be considered comparable to the reward the student might hope to realize from an independent enterprise planned and executed by himself and wholly for his own profit or that of his family. It must be feared that, however excellent may be its work in piecemeal demonstrations and in certain really valuable experiments, school farming must from a strictly commercial point of view always remain more or less artificial.

Perhaps the best use to which an agricultural school, large or small, can put its own land and equipment is that of demonstration and experiment. Most schools appear to have adopted this view. It is not clear, however, that any considerable number have adopted methods of training calculated to overcome their defects as agencies for graduating students thoroughly trained in the practice as well as in the theory of profitable farming.

Most of the schools are far from confining their activities to their own premises and regular school classes. What may be done, supplementary to the usual school work, has been admirably set forth by Messrs. D. J. Crosby and B. H. Crocheron in *Separate No. 527*, from the yearbook of the United States Department of Agriculture for 1910, under the title "Community Work in the Rural High School." Suffice it, for our present purpose, to say that these outside efforts are directly planned for the benefit of adults, for persons not in school.

The problem, then, of providing for actual participation, both as manager and as worker, in productive farming, simultaneously with his classroom instruction, on the part of the boy in the agricultural school, may fairly be looked upon as the most startling and stupendous problem in this great field of vocational education. How shall it be solved?

Georgia has attempted its solution, apparently, by requiring the officers and students of the congressional district agricultural schools to create a considerable portion of the equipment and buildings of those schools, and to improve the land and make it commercially productive; also, by proposing a method of reward for competent work, in part by payment per hour for half the labor performed, in part by a plan of profit sharing within fixed limits, and in part by the assignment to each student of an acre or more of land to be cropped for his exclusive benefit. It further proposes to require the attendance of one-fourth of the students through the entire growing and harvesting seasons. The citations from the Georgia law and proposed regulations published by the state authorities made responsible for the work of these schools, given when these schools were before discussed, show plainly the trend of vocational education in that state.

*The Massachusetts plan.*—Massachusetts has developed another plan for the solution of this problem. This plan was fully set forth in a report submitted to the legislature in January, 1911, by the Massa-

chusetts Board of Education. The legislature has provided state aid for carrying this plan into effect. A vocational agricultural school may be established by any town or city, or by any group of towns or cities which may voluntarily form themselves into a district for this purpose. The state has not been definitely divided into districts by the legislature—congressional district, county, or any other.

Provided an agricultural school, large or small, taught by one teacher or more, with or without school land and live-stock, with training extending over two, three, or four years, a school in general farming or in such specialized production as market gardening—provided an agricultural school is approved by the Massachusetts Board of Education as to “organization, control, location, equipment, courses of study, qualifications of teachers, methods of instruction, conditions of admission and employment of pupils and expenditures of money,” the community or voluntary district maintaining it is entitled to reimbursement from the treasury of the state to the extent of one-half the amount expended in maintaining the school from funds raised by local taxation. The state contributes nothing toward the initial cost of land, buildings, or equipment.

Since the report in which this plan was set forth is not available for distribution, the original edition having been exhausted, it has been suggested that its dominant feature should be given here. That dominant feature has been termed “Part-time Work in Agriculture.”

#### PART-TIME WORK IN AGRICULTURE

*Part-time work in agriculture* is the utilization of home land, equipment, and time, outside school hours, for practical training supervised by the school. The term “part-time work” is a descriptive expression, brought over from current discussion of certain forms of industrial training, for use in unfolding the possibilities of this proposed type of training in the field of education in agriculture. Part-time work in industrial education means that the student spends part of the time required for his training in a shop or manufacturing establishment, and part of the time at the school building; both school and shop work, however, being intimately related and supplementary to each other.

Part-time work as applied to agricultural education means that the student must spend part of the time required for his education in productive farm work, preferably at home, and part of his time at the



school; the farm work and school study to be closely correlated by the school at points selected from season to season or from year to year, and to be given the highest possible educational value by competent school supervision.

*Equitable.*—The same causes that have brought about a widespread demand for co-operation between school and shop in industrial training make just as necessary similar co-operation between the school and the home farm in agricultural training. Historically, shop and farm at one time gave the youth all his vocational training. Of late the tendency has been, under the stress of modern conditions, to throw upon the schools almost the entire responsibility for the industrial and agricultural education of minors. It is becoming increasingly apparent that the school cannot meet this difficult and expensive burden, unaided. It therefore seems to be equitable that the schools shall bestow the related theoretical instruction which they are so well designed to give, leaving to factory and farm the task of giving, under expert direction, the practical experience which they are well equipped to confer.

*Economical.*—Such part-time work reduces the cost of agricultural training of secondary grade so as to place effective training for the farm within the reach of many communities which would otherwise be unable to secure it. Part-time work obviates the necessity of sending the boy away from home in order to secure the benefits of agricultural training. The cost of living for the boy is less at home than it would be at a boarding school. Parents are deprived of the services of the boy during only a portion of the day.

*Effective.*—Co-operative work between the school and the home farm is the most effective known means of trying out, under the conditions of individual farms over widely scattered areas, methods which have proved to be profitable elsewhere, as, for example, at a State Agricultural Experiment Station. Such co-operation furnishes the only experimental means by which each boy can try out the merits of the home farm as an agency for producing profits, when treated by the best-known methods; that is to say, part-time work furnishes the only means whereby the principles and methods taught by the school may be positively adapted by the boy to the economic conditions on the farm on which he may spend his working days. Part-time work thus gives to agricultural teaching the reality of actual life, as but little school training can give it.



It is believed, in short, that every purpose of economy in the establishment and maintenance of a system of agricultural schools, and of efficiency in the education provided, will be insured by utilization to the largest possible extent of home land, equipment, and time in the training of boys for the successful pursuit of farming.

*In a state system.*—Under the “part-time work” plan, developed into a system for a whole state, centers would naturally be selected. The instruction would then be adapted to the kinds of farming prevalent in the districts surrounding those centers. The practical applications of the instruction would thus be subject to the obstacles continually encountered under the economic farming conditions found in any given district; just as they would, also, be aided by all the influences in that commonwealth which make for the improvement of farming. The plan, as an educational process, is believed to possess unquestionable merit, because farming activities readily resolve themselves into what may be termed farming “projects.”

#### PROJECT METHOD FOR PART-TIME WORK

*A farming project is a thing to be done.*

1. *Improvement projects.*—The thing done might contribute some element of improvement about the farm, as constructing a concrete walk leading to the front door, the planting and nurturing of shade trees, the making and maintaining of an attractive lawn.

2. *Experimental projects.*—The thing done might be of an experimental nature, as the planting of an untried variety of fruit, the feeding of an untried ration, the testing of an untried spraying mixture, or the testing of one or another of much advertised roofing materials.

3. *Productive projects.*—Finally, the thing done might be of a productive nature, as the growing of a crop of clover or alfalfa, the growing of a field of potatoes, the growing of a crop of silage corn, or the production of eggs for the market.

*A farming project is, further, something to be done on a farm, which would involve a limited and definite amount of equipment, materials, and time, and which would be directed toward the accomplishment of a specified and valuable result.*

1. *Improvement.*—An improvement project might be limited, for example, to a given length and width of concrete walk, constructed of

a given kind of stone, sand and cement, costing not to exceed a given sum of money, and requiring not to exceed a specified amount of time.

2. *Experimental*.—An experimental project might be limited, for example, to the planting of a given number of trees of an untried fruit, on a piece of ground which could well be spared for such a hazard, and involving a cost in time and money which it was felt could be afforded at a given time for this risk.

3. *Productive*.—A productive project might be limited, for example, to the growing of a given area of clover or alfalfa, at a given cost for seed, fertilizer, and labor, and for the securing of a specified quantity and value of feeding stuff or roughage.

*Finally, a farming project, as the term is here used, is a thing to be done on a farm, which, in the preparation for doing it and in the carrying of it out to a successful result, would involve a thoroughgoing educational process.*

1. *Improvement*.—The improvement project of constructing a concrete walk to the front door might involve the study of the nature of cement; its action on sand, and gravel or broken stone; its resistant qualities to the weather; the seasons at which it could be used; its cost, as compared with other materials, such as boards, plank, tar, brick, flagging, and asphalt; the mathematical determination of the proportions of cement, sand, and stone to be used; the geometrical determination of the sections into which it should be divided, and whether it should be crowned or flat; the geographical sources of the raw material; and the market conditions for purchasing cement.

2. *Experimental*.—The experimental project of planting an untried variety of fruit might involve the study of the probable adaptability of the variety selected to the soil, the climate, and the market demands within reach of the farm.

3. *Productive*.—The productive project of growing a crop of clover or alfalfa might involve the study of the various varieties of clover; the comparative adaptability of these varieties to the given field on which the crop was to be grown and to the climate of the locality; the most reliable places for the purchase of seed; the best time for seeding; the best time for cutting; the best methods of curing and storing; the mathematical calculation as to the saving in cost of feeding stuffs which the crop would afford; the chemical elements it would furnish

in the ration; and the chemical, biological, and mechanical effects on the soil in which it would be grown.

*A complete definition of a "project" as here used has three elements.*—Thus, it will be seen that a complete definition of a farming project as here used involves the three elements of (1) something to be done on a farm, (2) under specified conditions and for a specified valuable result, and (3) requiring a thoroughgoing training.

*Project fields or classes.*—There are certain broad, general fields in which numerous projects might be found. Among these are:

Vegetable gardening.	Greenhouse crops.
Flower gardening.	Production of poultry products.
Landscape gardening.	Beekeeping.
Orcharding.	Swine husbandry.
Small fruit growing.	Sheep raising.
Growing of general farm crops.	Horse raising.
Farm forestry.	Dairying.

Agricultural physics and mechanics as applied to farm buildings, drainage, irrigation, and providing and maintaining farm machinery.

*Major projects.*—Projects within the above general fields might be major projects. Of major projects, the following may be given as examples:

1. *Caring for the kitchen garden.*—Under the direction of the school, a boy over fourteen years of age might be required to cultivate the kitchen garden for supplying the family with vegetables or small fruit.

2. *Keeping a pen of poultry.*—Under the direction of the school, he might be required to keep a pen of, let us say, twenty-five birds, for the purpose of producing a net profit on the enterprise.

3. *Caring for a selected part of the orchard.*—Under the direction of the school, he might be required to care for a part of the home orchard, say five apple trees, so as to improve the quality of the fruit and thus gain a larger net return.

4. *Raising a specified crop of potatoes.*—Under the direction of the school, he might be required to raise on the home farm an acre, or a tenth of an acre, of potatoes, according to his age and strength, so as to secure the best possible crop and the largest possible financial return.

5. *Caring for one cow.*—Under the direction of the school, he might be required to care for at least one cow in the home herd, with a view

to securing from her the highest production of which she was capable, and to determining whether she were yielding an adequate profit.

*Major and minor projects.*—While the above does not constitute by any means a complete list of possible major projects, it is intended to be suggestive of the many and diversified kinds of projects that might be feasible for use in the part-time work under consideration. A major project may include a great many minor projects.

*Minor projects are related to major projects as parts to the whole.*—Minor projects include all the diversified activities which the boy must perform in order to bring the major project which he has undertaken to a successful conclusion.

*Details of a project suitable for first- or second-year instruction.*—Later in this discussion details are given of a project suitable for use with third- or fourth-year students. The subject in that case is a staple product likely to be grown on every farm, or at least in every farm garden.

At this point it may be desirable that the possible working out of the project method of instruction should be illustrated by details of a subject which would be suitable for use with students of the first or second year.

In the list of major projects above given, the second, "Keeping a Pen of Poultry," will, perhaps, best serve this purpose. This project permits of clear analysis. It is sufficiently familiar to make intelligible such technical terms as it may be necessary to use. It deals with a branch of agricultural production found on every farm and at many village homes; yet a branch from which, when conducted as a separate undertaking and on a strictly business basis, it is very difficult to make a profit. It has to do with farm products which are of very great economic importance for the advancement of agriculture in Massachusetts, at any rate; since this state, while admirably suited for poultry keeping, imports \$25,000,000 of poultry and eggs annually, and produces less than \$6,000,000 worth per year. (See *Agriculture of Massachusetts*, the report of the Secretary of the State Board of Agriculture, 1909, p. 119.)

Owing to the attention now being given poultry keeping by the agricultural colleges and experiment stations, materials for teaching the subject scientifically and practically are increasing, and make this one of the most promising lines of project instruction for school use.

Poultry keeping, moreover, affords one of the best projects for transition from the boy's treatment of animals as pet stock to his treatment of them as vital factors in economic agricultural production.

Important as this poultry project is, however, it will, of course, be understood that there are many other projects suitable for first- and second-year use. This project is but a single example of the many which might have been given.

*Minor projects.*—Suppose the major project in preparation for purposes of instruction be No. 2, above given, "Keeping a Pen of Poultry." Then certain minor projects necessary for carrying out this major project might be:

1. *The building of a poultry house* (if necessary), according to plans and specifications worked out at the schoolhouse. This minor project in turn could be broken up into a number of subordinate minor projects necessary to its successful completion, such as:

- (a) The selection of a site for the poultry house.
- (b) The adoption of a plan for the poultry house.
- (c) The materials entering into the construction of the poultry house (involving kind, cost, and availability).

2. *The selection of birds*, as determined by the purpose in keeping them (whether for show stock or utility, breeding or egg producing). This minor project in turn might be broken up into a number of subordinate minor projects necessary to its successful completion, such as:

- (a) The choice of type and breed.
- (b) The choice of breeding stock.
- (c) The choice of method of beginning the project.

3. *The feeding of the poultry.*—This minor project might in turn involve a number of subordinate minor projects necessary to its successful completion, such as:

- (a) The selection of the kinds of feed.
- (b) Working out problems of feeding.

4. *Other minor projects* within the major project of "Keeping a Pen of Poultry," which might also be analyzed into numerous subordinate minor projects, each necessary to the successful performance of the larger minor project and the major project of which it forms a part, are:

- (a) The production of eggs for profit.
- (b) The production of chicks by incubator.

- (c) The care of chicks by artificial brooding.
- (d) The rearing of chicks.
- (e) The handling of young stock.
- (f) The fattening and killing of poultry.
- (g) The marketing of eggs and birds.

In like manner, every major project similar to those heretofore described, chosen by the school for purposes of instruction, might be analyzed into the minor projects of which it was composed, both in order that the various activities of the boy in the successful accomplishment of the major project might be effectively directed and supervised, and, as we shall see later on, in order that the theories and principles related to the different phases of his task might be given at the time when they would be most effective from the practical and the educational points of view.

Three factors must, it is believed, determine the measure of success in any given plan of part-time work in agriculture: (1) the farmer and his farm; (2) the school and its agricultural supervisor; (3) the boy and his projects.

1. *The farmer and his farm* must constitute the fundamental factor in the practical training of the boy. There can be little effective work in the field of part-time training for the farm without a reasonable spirit of co-operation on the part of the parent. Parents in Massachusetts are required to pledge co-operation.

There are at least three ways in which the parent can aid in making the directed farm experience of the boy most educative: (a) in the use of the home plant; (b) in the use of the home time of the pupil; (c) in giving the boy's projects economic importance.

(a) *In the use of the home plant.*—One of the most essential features of the co-operative part-time plan between home and school is that the parent shall be willing to devote from time to time in accordance with the plans of the supervisor or teacher in charge of the work, a reasonable portion of his buildings, orchards, garden, pasture, forest, and other fields, and of his implements and machines, animals and materials, to the directed training of the boy.

(b) *In the use of the home time of the pupil* the fullest value of the agricultural course comes from the fullest possible participation of the boy in the ordinary routine of farm work as usually carried out by the parent; but the greatest benefit of the school cannot be had without the use

of a part of the boy's time, during the hours spent at home, for strictly school purposes. The following are a few of many illustrations of what might be the directed use of a part of the home time of the pupils in the pursuit of projects suggested and directed by the school:

- A. The boy may help with the milking throughout his course, where the object is to get the cows milked as quickly as possible, and where no records are kept. During certain months of at least one year, the school should require whatever time may be necessary for keeping an accurate record in pounds and ounces of the yield of a part of the herd. This may be limited to the weighing of milk from a single cow, and giving the cow credit for what she produces.
- B. It may be part of the boy's business to assist in feeding the cows. During part of his course, sufficient time should be given for weighing the ration and charging at least one cow with what it costs to keep her.
- C. In the ordinary routine to which he has been accustomed in milking, much or little attention may have been paid to cleanliness of cows, utensils, or the person and clothing of the milker. During part of his time in school, the boy should be given whatever time may be necessary for milking at least one cow and preserving her milk under absolutely sanitary conditions, and for sampling the milk for bacteriological tests.
- D. In the ordinary cropping of the farm, much or little attention may have been paid to leguminous crops. But during one season at least, facilities should be given the pupil for growing a patch of moderate size of clover, and for observing the effect of introducing a large proportion of clover into the ration of the cow.
- E. In the ordinary conduct of the farm, much or little attention may have been paid to the selection and testing of corn for seed. But prior to planting, one season at least, the boy should be given whatever time may be necessary for making germination tests of the corn which it is proposed to plant.
- F. Also, during one season, the boy should be given control of a portion of a cornfield for making an "ear to row" corn test; for observing the difference in yield from different ears of corn—all the corn from one ear being planted in one row and all the corn from another ear being planted in another row.
- G. In the ordinary routine of the farm, it may be the business of the boy to tend the poultry. During at least one year, he should be given control of at least one pen of poultry, and facilities for feeding a balanced ration and trap nesting individual birds for comparison of productivity in laying.



*H.* It may be part of the usual work of the boy to help cultivate and harvest the potato crop. During one season at least, he should be given facilities for testing the value of the use of formalin for the prevention of potato scab, and of the Bordeaux mixture for protection against potato blight.

(*c*) *In giving the boy's projects economic importance*, the active aid of the parent would again be almost indispensable.

*A. Keeping accounts.*—Whether or not the parent were in the habit of keeping books, it would be vital to the success of the school training that accurate accounts of outgo and income should be kept with regard to certain home projects directed by the school. Every boy should be taught business-like methods for carrying on work. Modern business methods provide for discovering exactly where money is made, and where it is lost, at any stage or in any part of a given enterprise.

The boy should be given opportunity for testing, under his home conditions, the value of methods which have proved efficacious in business. The school, to be effective, must teach economic production in every phase of farm life for which it gives preparation. Accounting is necessary to any intelligent comparison of the effectiveness of the method advocated by the school with that of a method previously or subsequently followed.

*B. Projects as business enterprises.*—If the experiences of the boy in the farming projects are to be educative to the largest degree, it is believed that they should be conducted strictly as business enterprises. Four methods of meeting the problem of the cost and profit of these directed farming operations would be possible: (*a*) the parent might meet all the cost, and give the boy all the profit; (*b*) the parent might meet all the cost, and retain all the profit; (*c*) the parent might meet all the cost, and share the profit with the boy; (*d*) the boy might receive the net profit, after the cost of the project had been paid.

From the educational point of view, the last method, by which the boy, after conducting the given project as a business enterprise, would profit only to the extent to which his total receipts exceed the total cost of the enterprise, is believed to be in every way preferable. By this method the boy would learn, once for all, through his own experience, that there can be no product without cost, and no profit without excess of receipts over all expenditures. After such an experience, he would not be likely to undertake a new enterprise without a serious attempt to estimate accurately his probable profit. The boy would be subjected



to the prevailing economic conditions under which the home farm must yield a profit, or a loss, at the end of each year of work.

The method by which a boy becomes on a small scale a farmer or a business man for himself gives the project which he is carrying on a reality not otherwise attainable, that heightens measurably his interest in the work and in the related study of the school, and must fix better than by any other device the training which he is receiving.

Incidentally, it may be remarked that, as a matter of public spirit, the citizens of the community may do much to further the objects of the school by admitting the agricultural instructor or supervisor and his students to their premises, for the examination of animals, machines, and all out-door and in-door operations, and by explanation and discussion of their methods of accounting and their improved farming processes. At another point in this discussion the possible fields of usefulness to a community of such an instructor or supervisor are pointed out.

2. *The school and its supervisor.*—Part-time work in agriculture, whether the school be large or small, requires the services of a trained and experienced agriculturist, who devotes his entire time to teaching the principles and the best methods of farming. It is believed, further, that largely through this instructor or supervisor of agriculture the school should: (a) choose the projects to be undertaken by the boy; (b) direct his work in the discharge of his projects; and (c) put him in possession of the principles that relate to them.

(a) *In the selection of the projects to be undertaken by the boy*, the instructor should take into consideration:

- A. What farming enterprises are profitable, or could be made so, in the neighborhood.
- B. The age of the boy.
- C. The kinds of projects that would be feasible on the home farm.
- D. The boy's routine farm work at home.
- E. The assistance that the father could afford to give in materials and equipment.
- F. The suitability of the project to the season of the year.
- G. The projects and portions of projects that could best be carried out at the school, and the best time on the program of the year for these parts of the work to be done.

The problem of the building of a poultry house by the boy would be one of the possible minor projects, as before shown, when the larger

project of keeping a pen of poultry was under consideration. This problem would naturally involve such questions as these:

- A. Would the student have the necessary time?
- B. Could the necessary materials be provided by the parent or student?
- C. How much personal supervision of the actual work of construction would be necessary or advisable on the part of the supervisor?
- D. Would profitable poultry keeping on a given home farm require the improved accommodations which the model poultry house, built by the student, would furnish?
- E. How far would conformity to the standards set up by the school be necessary in determining what would be a model type of poultry house for a given farm?
- F. In what year of the school course should the building of a poultry house be undertaken, in order that the training in poultry keeping might be made most profitable?
- G. What time of the year could the student build a poultry house to best advantage?

The problem of conducting the building of the poultry house as a strictly business enterprise is a project which would naturally involve these questions:

- A. To what extent, if at all, could the boy be required to meet, or be charged with, all cost save his own labor, and be credited with a fair inventory valuation of the completed structure?
- B. If the parent must advance the money or materials, what rate of interest, if any, should be charged the boy?
- C. What method of accounting should be adopted?
- D. Should such records be kept as would enable the cost of this building to be compared with other similar buildings in the neighborhood, as a check upon the business-like character of the boy's working out of this project?

*(b) In directing the work of the boy in the discharge of his projects, the school must of necessity, it is believed, undertake the supervision of a portion of his work at home. Supervision of part-time work in agriculture is not an attempt on the part of the school to interfere with the private management of the farms of the parents. Supervision, nevertheless, is a continuous effort by the school to assist, advise, and encourage the students in applying under home conditions, farm methods which have proved successful elsewhere, and thus to cause the practical training of the students to result in vocational efficiency.*

*The instructor would not undertake* to supervise all the details of the farm management on any given farm. Daily supervision would be impossible, because of the number of farms to which the work of the school must be extended. Excessive attention to minute details of farm work on the part of the instructor might create needless friction between himself and the parent, or might interfere materially with the supervision of a proper amount of project work. It is, therefore, not contemplated.

The school should not, it is believed, undertake to shift responsibility for the economic management of a farm from the shoulders of the parent to the shoulders of the public.

*The instructor would undertake* to supervise certain selected major projects and their related minor projects performed by the boy at home. In a given year and season attention might, for instance, be concentrated upon the project of keeping a pen of poultry. Having given the study related to this project, the instructor would supervise the application of that study. The following examples illustrate what the character of such supervision might be:

- A. In the building of the poultry house, the actual work of putting up the structure might, or might not, be supervised by the instructor. All other elements or phases of the enterprise should be worked out by the student under the direction of the school.
- B. The course in farm shop work of the school might well undertake to deal with the problem of the actual construction of the poultry house.
- C. It would be the duty of the instructor or supervisor to canvass thoroughly with the student the relative merits of different types and methods of poultry keeping, from the points of view before indicated. His supervision might go the extent of passing judgment on any proposed purchase of breeding stock, chicks, or eggs.
- D. The supervisor would not personally direct the daily routine work of feeding and watering poultry. His duties would consist of directing the thorough study of possible feeds and mixtures, their comparative cost and availability, and their suitability to the age, condition, and purpose of the student's particular birds. For such supervision personal knowledge by the instructor of the exact home conditions would be necessary.

The supervision of the practical home work of the boy or girl would naturally follow the settlement of such problems as these:

- A. How could supervision and instruction be closely correlated?
- B. How should the time of the instructor and of the pupil be apportioned between home and school duties.

- C. What would be the maximum radius, from the school building as a center, of effective supervision?
- D. What methods might be employed for securing and holding the co-operation of the parent and the community?
- E. By what means might satisfactory standards in the practical work of the student be maintained?

Thus far we have discussed the duties and responsibilities of the special instructor or supervisor of agriculture *in the field of direction* of the boy's projects on the home farm.

*The instructor might undertake* to give help to others than those connected with his school. There are not wanting those who believe that such an agricultural instructor attached to a regular high school might render valuable service to the community in which he was employed, in what might be termed *the field of suggestion*. Considering the previous training and experience required of this instructor, he should be a man well prepared to be of wide assistance in a farming community as an adviser in emergencies which called for special knowledge and skill. If met by a problem with which he could not cope unaided—and there might be many such problems—he would know the best men, books, and bulletins, or where to find them, for consultation in such emergencies. Such problems might arise from attacks upon crops by injurious insects or by fungous diseases.

The friendly advice which the agricultural instructor might give need not mean a meddlesome attitude on his part. His suggestions would not be given save when requested, or when it was evident that they would be welcome.

*The field of suggestion* would naturally begin with farms represented in the school by students. The instructor would of course stand ready to give the parents any advice of which he might be capable, or to get for them, or instruct them how to get, any information which they might need or desire. With the gradual extension of his knowledge to the other farms of the community, he might be expected to stand ready in a similar manner to be of assistance to the owners of those farms. Such service, however, would be incidental. His main work would be with the boys enrolled in his classes.

3. *The boy and his projects* form a natural connecting link between the farmer and his farm, on one hand, and the school and its instructor, on the other. At the farm, the pupil deals with the practical aspects of

his projects; and at the school, with their scientific aspects. The foregoing discussion has been devoted chiefly to the practical aspects of the proposed project method of instruction. The present section lays strongest emphasis on the related study essential for the successful carrying out of a particular project.

*Details of a project suitable for third- or fourth-year instruction.*—Earlier in this paper a project was dealt with which might, for the most part, be successfully carried out by a first- or second-year student. For the present discussion a project has been selected which would require considerable maturity of age, strength, and training for its successful accomplishment. It is true that simpler problems in potato growing have been successfully carried out by elementary school pupils; but even a glance over the elements which enter into the project now to be outlined will show that problems altogether too serious to be comprehended or undertaken by the younger pupil are here involved.

It is to be understood, of course, that the following project is but one of many which might be selected.

(a) *Major project.*—It is assumed that the boy has chosen for his major project the development of a method for increasing the profit from the potato crop customarily grown on the home farm. It is further assumed that 5 acres of potatoes are generally grown; that this year the crop is to be grown on clover sod; that the variety of potatoes to be grown has been chosen by the father; and that the boy's father is willing that his boy shall have complete control of a given number of rows of the 5-acre field, and shall be furnished the necessary tools and materials for his project.

(b) *Minor projects* necessary for carrying out the above major project might then be as follows:

A. *Insuring the most abundant crop by:*

1. *A proper seed bed.*—The related study here would involve knowledge of:
  - (a) Conditions of soil, air, texture, temperature, and moisture most favorable to the growth of the potato plant, including methods of reducing an undesirable amount of "free" water, of avoiding too great dilution of plant food, and of securing a desirable amount of "film" water.
  - (b) Methods of preparing the seed bed, including the comparative advantages of fall and spring plowing, and the best treatment of the land in the spring after plowing and prior to planting.

2. *Proper fertilizing.*—The related study here would include knowledge of:
  - (a) Chemical composition of the potato plant, its osmotic and digestive processes, and the quantity of available fertilizing materials it is capable of assimilating.
  - (b) Complete fertilizers for the production of potatoes, including analyses of standard fertilizers, and the plant-food values for potato growing of chemicals and mixtures offered for purchase.
  - (c) Comparative desirability of muriate and sulphate of potash for producing a crop to be disposed of in an immature state as new potatoes, or for producing a crop of late potatoes to be disposed of for winter use; and the extent to which the “mealy” character of the mature crop should be the determining factor in choosing between these two kinds of potash.
  - (d) Clover sod as a factor in determining the proportion of nitrogen to be supplied.
  - (e) Best formula for a complete fertilizer for this particular crop, taking into account the potato plant, the previous crops and their fertilizer treatment in the system of crop rotation followed on the home farm, the present soil conditions, and the purpose of the crop.
  - (f) Most liberal amount of fertilizer warranted for use in growing this particular crop, in view of the known condition of the land and the assimilative powers of the potato plant; and the saving in cost by home mixing of the supply to be used.
3. *Using the best seed.*—The related study here would include knowledge of:
  - (a) Botanical characteristics of the potato plant; the difference between a seed and a tuber; and potato improvement by various methods and conditions of propagation, taking into account tendencies of the potato plant to “variation” and to “mixing in the hill.”
  - (b) Importance of planting “seed” selected in the field from the best-yielding hills, rather than seed selected from the bin merely by size of tubers.
  - (c) Advantage of using potatoes for planting which have been properly stored, and the effects of freezing and sprouting in the cellar.
  - (d) Conditions under which it may be desirable to sprout potatoes to be used for planting, in a warm, well-lighted room—the temperature, the time, and the care in handling required for such sprouting.
  - (e) Size of piece and number of eyes to the piece, as important factors in starting the crop and in the quantity of its yield.
4. *Proper planting.*—The related study here would include knowledge of:—
  - (a) Botanical and chemical characteristics of the potato plant, as to

its feeding habits, the growth of the tubers, and the effect on the tubers as food products of exposure to the sun during their growth.

- (b) Distances between rows, and between seed pieces in the row.
  - (c) Depth of planting, in its relation to protection of the tubers from the sun, shielding the crop from possible rot-producing bacteria and spores, and subsequent cultivation, whether by the "level" or by the "hill" method.
  - (d) Best time for planting, whether for "early" or for "late" potatoes.
5. *Proper spraying.*—The related study here would include knowledge of:
- (a) Botanical characteristics of the potato plant, particularly the relation of health and luxuriance of foliage to tuber production.
  - (b) Insect enemies of the potato plant, and their entomological characteristics, such as their methods of propagation and their feeding habits.
  - (c) Depredations of insects, and their possible relation to attacks upon the potato plant by plant diseases.
  - (d) Paris green: its chemical composition; its protective action against the insect enemies of the potato plant; dangers attendant upon its use; its possible combination with Bordeaux mixture; and the best formula, method of preparation, and periods for its application.
6. *Proper cultivation.*—The related study here would include knowledge of:
- (a) Physical characteristics of the soil, particularly the capillary movement of water to the surface of the soil, and exhaustion of soil moisture by evaporation.
  - (b) Surface conditions most favorable for receiving rain water without washing, puddling, or subsequent baking.
  - (c) Value of a "soil mulch," and the most desirable method and frequency of cultivation for maintaining such a mulch.
  - (d) Comparative cost and advantages of "level" and "hill" cultivation, and reasons for the choice of the particular method to be followed in cultivating the present crop.

**B. Insuring the cleanest crop by:**

1. *Dipping the "seed" potatoes* in a formalin solution. The related study here would involve knowledge of:
- (a) Plant parasites which produce "scabby" potatoes, and the biological conditions favorable and antagonistic to their growth.
  - (b) Formalin solution: its chemical constitution; its chemical action on these damaging potato parasites; and the proper formula and method for its use in protecting the potato crop.



2. *Substitution of chemical fertilizers* for barnyard manure. The related study here would involve knowledge of:
  - (a) Dangers of infection from the use of barnyard manure.
  - (b) Dangers of infection, if any, from the use of chemical fertilizers.
- C. *Insuring the soundest crop by spraying* the potato plants with Bordeaux mixture. The related study here would involve knowledge of:
  - (a) Bacterial and fungous diseases to which the potato plant is subject; evidences of their presence; and whether or not they are preventable.
  - (b) Bordeaux mixture: its chemical composition; its protective action against potato-plant diseases; and the best formula, method of preparation, and periods of application for its use.
- D. *Other minor projects* would include the most profitable means and methods of harvesting, storing, and marketing the crop. And other studies related to these projects would include knowledge of potato implements and machines and their use; the comparative advantages of field pit and cellar for storage; principles and means of ventilation, and the temperature at which potatoes should be kept; near and more distant markets, and comparative transportation cost; prices and the probable tendency of prices, in view of the press and government reports of the potato crop for the state, the country, and the world.

*General observations on related study.*—The study related to the work of carrying out this potato project embraces, therefore, important matter from several sciences, including botany, chemistry, physics, entomology, bacteriology, and plant pathology. For the calculations, mathematics would be necessary; for keeping the accounts, bookkeeping would be required; for correct correspondence, there should be training in business English; consideration of transportation, markets, and world-production would involve knowledge of commercial and agricultural geography.

The project method of instruction on the side of related study, thus, it will be evident, must insure that the boy, in carrying out his projects, shall pass through a thoroughgoing educational process.

*Good citizenship.*—It is proposed, furthermore, that the division of time, in carrying out the school and home farm co-operative method of training, shall be about as follows: for the execution of the projects, including work during vacations and other out-of-school hours, 50 per cent; and for the related study, 30 per cent. The remaining 20 per cent of the time of the boy is expected to be used for general culture and good citizenship instruction, wherein systematic courses may be



provided in such subjects as English, history, civics, current events, mathematics, and science.

#### AGRICULTURAL INSTRUCTOR AND HOME WORK SUPERVISION

In order to carry out the project method in agricultural part-time work, it has been shown that it is necessary to employ at least one instructor throughout the summer for supervision of the home-farm enterprises of the pupils. And it is evident that such an instructor must possess special qualifications for this work, in preparation, experience, and personality.

*He should be a graduate of an agricultural college.*—His preparation should include graduation from an agricultural college or its equivalent. He should be familiar with and keep in touch with the officers and the work of the agricultural college and experiment station of the state in which he serves and he should keep in touch with the experiment stations in other states where work is being done under conditions similar to those in his state.

He should be familiar with the work of the United States Department of Agriculture, so far as it is applicable to his state. He should be capable of keeping in touch with new literature in pamphlet, periodical, and book form, as it is issued, and to the extent that it may be applicable to his locality. He should be familiar with the work of organizations concerned with rural progress in his state, and capable of heartily co-operating with their officers.

*His experience.*—Preferably, such a person undertaking to prepare for agricultural teaching, in Massachusetts for example, should have been reared on a Massachusetts farm, or on a farm where the agricultural operations would yield experience of value for work in this state. He must be a master of farming as a handicraft and amply able to demonstrate the things which he undertakes to teach; and he should be familiar with, and be able to demonstrate the use of, the kinds of farm machinery which can be economically used on farms of his locality.

*His personality.*—Since he must teach, such an instructor or supervisor must be effective in discipline; that is to say, in the handling of boys. He must be prepared to meet people in his community pleasantly, and establish agreeable working relations with them. He must be prepared to maintain harmonious relations with his fellow-teachers,

and be amenable to the authority of the officers responsible for the school which he serves.

*His school year* should provide for service during the spring, summer, and fall months, giving him a vacation during the winter months; rather than for service during the fall, winter, and spring, with summer months for vacation purposes. Such a program would insure his services throughout the growing and harvesting seasons; and, by allowing him time for proper professional improvement through winter study at the state agricultural college, and through further observation and experience on intensive commercial plants, such as those devoted to poultry, certified milk, and greenhouse and hot-bed production of vegetables, cut flowers, and foliage plants, should make him permanently and increasingly useful.

*His absence during winter months* would not seriously disturb the curriculum of the school; on the contrary, it would make room for the teaching of related subjects, including manual-training projects related to the farm, by other members of the staff to the lower classes; it might also enable the higher classes to take winter short courses at the agricultural college, and thus make them acquainted with men engaged in research and experimental work.

*The salary of such a supervisor* is an important consideration. Experience seems to show that, in order to command the services of a man having the technical training, practical experience and personality called for in the above discussion of the necessary qualifications of a successful supervisor, salaries ranging from \$1,200 upward must be paid. One such instructor in Massachusetts was started at \$1,500 and will be advanced \$100 a year to \$2,000, if his work continues to give satisfaction.

*The problem of necessary salaries is an economic one at bottom.*—In order to attract to the work a supervisor of the type herein described, it will be necessary to make the compensation which he is to receive as good as, or better than, that which is offered to him in competing lines of work.

#### CONCLUSION

It is believed that home farm work, supervised by the school, where conditions are at all like those in Massachusetts, might well be substituted as far as possible for the present methods of much work, little work, or no work at all of a *productive and managerial* nature, now

found in connection with vocational agricultural school training; and that the project method of bringing agricultural science immediately to bear on actual farm practice, in going commercial agricultural enterprises conducted by the boys themselves, is a promising solution of our most pressing problem in this field of vocational training.

The Smith's Agricultural School at Northampton, Massachusetts, beginning with the school year 1908-9, has employed a man for the express purpose of assisting the boys throughout the summer in applying the teachings of the school in their home farm work. This method immediately appeals to the motor instincts and activities of boys of secondary school age. The success of boys in the corn-growing clubs in many states shows that boys instantly respond to help at home.

A school boy of sixteen at the recent Massachusetts Corn Show won the sweepstakes against all comers, including the sweepstakes winner of last year at the big New England Corn Show, for the best single ear of corn and also for the best collection of ten ears. He had been given seed by the former winner, and had been told and shown out of school hours what to do, and when and how to do it on his father's land. Most boys, like most men, learn best by being told and shown on the field of action.

This method offers the boy, all too eager to quit school for work on reaching his fourteenth birthday, a strong incentive to continue in school; because it bids fair to make him *an earner while still a learner*. Boys like to feel that as members of the family they are at last able to pay their own way.

In short, it is believed that the vocational education for farming outlined in the above discussion, and embodying the project and part-time work method, will justify itself from every reasonable point of view, and that the school, or system of schools which adopts it and works it out patiently and persistently will find that it possesses undeniable merit as a method of training not only for farming as a definite calling, but also for intelligent and vigorous participation in the community life of any commonwealth.

### III. STATE-AIDED DEPARTMENTS OF AGRICULTURE IN PUBLIC HIGH SCHOOLS

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Eleven states have appropriated funds to encourage the teaching of agriculture in existing public high schools. Several other states have made provision for special agricultural schools or given money for conducting teachers' training courses in which agriculture is one of the subjects of instruction, but these are not considered in this paper.

Virginia was first of the eleven states to make a specific appropriation for the teaching of agriculture in public high schools. In 1908 the Virginia Assembly appropriated \$20,000 to enable the State Board of Education to inaugurate courses in agriculture, home economics, and manual training in at least one public high school in each of the ten congressional districts of the state, and has since increased the appropriation to \$65,000, including \$25,000 to aid the schools in providing buildings and equipment, and \$10,000 for extension work to be conducted by them. There is nothing in the legislation to indicate how much money each school shall receive, because the number of schools to be aided, and hence the amount available for each, is not stipulated, this whole matter being left to the discretion of the State Board of Education.

Virginia was followed in 1909 by Maine and Minnesota. At that time Maine gave funds for instruction in agriculture and other industrial subjects in incorporated academies, but two years later an act was passed extending such aid to free high schools—two-thirds of the total expenditure for instruction in agriculture, home economics, and mechanic arts, but not to exceed \$500 a year to any one school.

Minnesota passed an act giving \$2,500 to each of ten high, graded, or consolidated rural schools maintaining courses in agriculture, home economics, and manual training, and the work of these ten schools proved to be so popular that in 1911 the legislature extended state aid at the rate of \$2,500 a year to twenty additional schools, and also passed another act giving \$1,000 a year to each of fifty schools to aid in main-

taining courses in agriculture and either in home economics or manual training.

In 1910, Louisiana, Maryland, and New York passed somewhat similar laws, and in 1911, Kansas, Massachusetts, North Dakota, Texas, and Wisconsin were added to the list. That local school authorities are ready and willing to meet all reasonable requirements as to expenditures for equipping and maintaining departments of agriculture, home economics, and farm mechanics in order to secure state aid, is shown by the rapid growth in the number of such state-aided departments. In May, 1910, there were twenty-eight schools receiving state aid for agriculture, while in November, 1911, there were at least two hundred and fifty.

The character and amount of state aid and the requirements to be met in the different states are shown in the following brief statements.

#### KANSAS

*Law*—Session Laws of 1911, chap. 24, sec. 2.

*Number and kind of schools aided*—Any high school maintaining a normal-training course under the provision of chap. 212 of the Session Laws of 1909. The State Board of Education has approved 98 schools for 1912.

*Character and amount of aid*—"The sum of \$250 per annum," the total state appropriation for this purpose being \$25,000 for 1912, and \$25,000 for 1913.

*For what purpose*—The maintenance of "courses in the elements of agriculture and domestic science."

*Requirements to be met*—At least ten pupils must be "enrolled in such industrial courses each semester." The State Board of Education has agreed that teachers in either of these courses must have special training for their work and their qualifications must be approved by the State Superintendent of Public Instruction. A minimum of 1 year in agriculture and 1 year in domestic science, preferably in the second year, will be required. "Laboratory work shall require double periods."

*Administered by*—The State Board of Education.

#### LOUISIANA

*Law*—Acts of Louisiana, 1910, No. 80, making appropriations to defray the ordinary expenses of the government, etc.

*Number and kind of schools aided*—Not more than 20 high schools maintaining agricultural departments in the school years 1911 and 1912.

*Character and amount of aid*—A lump sum appropriation for the year ending June 30, 1911, \$25,000, and for the year ending June 30, 1912, \$25,000.

Since the State Board of Education has decided not to aid more than 20 schools in 1911 and 1912, the appropriation to each school will be from \$1,200 to \$1,500. Nine schools maintained departments of agriculture in 1909-10 without state aid.

*For what purpose*—The maintenance of agricultural departments in connection with public high schools.

*Requirements to be met*—The State Board of Education has adopted regulations making the following requirements: Each school must have a demonstration farm of at least 5 acres, fenced against rabbits, chickens, and stock, and an option on 5 acres more if needed; there must be a barn with at least 5 stalls for horses and cattle, a weevil-proof grain bin, fertilizer and tool rooms, and a hayloft; the agricultural departments of approved high schools shall have at least \$100 worth of apparatus for teaching agriculture in addition to the regular apparatus for such schools, and those not on the approved list must have \$100 worth of apparatus for agriculture and from \$75 to \$150 worth of other apparatus; the school must also have at least \$40 worth of tools and \$140 worth of farm implements; an appropriation of at least \$250 for maintenance annually; and must own a horse or mule. The teacher of agriculture must be a graduate of an agricultural college with some practical experience in farming, and must be satisfactory to the department of education; he cannot be principal of the school and must not be required to teach any class in the school outside the department of agriculture except in botany and zoölogy, if these subjects are given an agricultural trend; he must be employed for twelve months in the year.

*Administered by*—The State Board of Education through the Supervisor of Agricultural High Schools.

#### MAINE

*Law*—Act of 1909 providing state aid for instruction in agriculture and other industrial subjects in incorporated academies, superseded by "An Act for the Encouragement of Industrial Education," Public Laws of 1911, chap. 188.

*Number and kind of schools aided*—Any free high school or incorporated academy.

*Character and amount of aid*—"A sum equal to two-thirds the total expenditure for instruction in each of said courses, provided, however, that no school shall receive a total in excess of \$500 in any one year for the support of said courses."

*For what purpose*—Instruction in the "principles of agriculture and the domestic and mechanic arts."

*Requirements to be met*—An average attendance of not less than 12 students in any course for which state aid is claimed. The course of study, equipment,

and qualifications of instructors to be prescribed by the State Superintendent of Public Instruction.

*Administered by*—The State Superintendent of Public Instruction, except that the funds are paid out upon order of the Governor and Council.

#### MARYLAND

*Law*—Acts of 1910, chap. 386.

*Number and kind of schools aided*—Any high school of the first or second group. High schools of the first group must have not less than 80 pupils, 4 teachers of high-school subjects, exclusive of teachers of special subjects, a course of four years of 36 weeks each, and provision for manual-training and domestic-science courses and also for a commercial or an agricultural course. High schools of the second group must have at least 35 pupils, 2 teachers of regular subjects, a three-year course, and a manual-training (construed to include domestic science), or an agricultural, or a commercial course.

*Character and amount of aid*—In addition to state aid for the salaries of the principal and regular teachers, schools of the first group receive from the state "\$400 on account of each of 2 special teachers, who shall spend at least two-fifths of their time in the school receiving said amounts, and schools of the second group \$400 on account of 1 teacher of special subjects, provided that if an instructor in manual training or agricultural work be required to divide his or her time among not more than four schools of this group, \$150 shall be allowed on account of each of such schools."

*For what purpose*—Instruction in manual training and domestic science and commercial or agricultural subjects.

*Requirements to be met*—So far as agriculture is concerned high schools of the first group must conform to a four-year course of study prescribed by the State Board of Education, requiring a minimum of two recitations of 40 minutes each and one practicum of 80 minutes each week.

*Administered by*—The State Board of Education.

#### MASSACHUSETTS

*Law*—"An Act to Codify and Amend the Laws Relating to State-aided Vocational Education," approved May 26, 1911.

*Number and kind of schools aided*—Public high schools.

*Character and amount of aid*—Two-thirds of the salary paid to instructors in agriculture, provided that the total state expenditure for this purpose shall not exceed \$10,000 in any one year.

*For what purpose*—The maintenance by cities and towns of "local or district independent agricultural schools consisting only of agricultural departments in high schools."

*Requirements to be met*—Approval by the State Board of Education “as to organization, control, location, equipment, courses of study, qualifications of teachers, methods of instruction, conditions of admission, employment of pupils, and expenditures of money.”

*Administered by*—The State Board of Education.

## MINNESOTA

### *Putnam Act*

*Law*—“An Act to Amend Chapter 247, General Laws 1909, Entitled, ‘An Act to Provide for the Establishment and Maintenance of Departments of Agriculture, Manual Training, and Domestic Economy in State High, Graded, and Consolidated Schools, and to Authorize Rural Schools to Become Associated with Such State, Grade, or High Schools, and Making Appropriation Therefor,’ and to Provide for Levying of Taxes to Carry Its Provisions Into Effect,” approved April 5, 1911.

*Number and kind of schools aided*—Any high school, graded school, or consolidated rural school having satisfactory rooms, equipment, and location, limited, however, by a state appropriation for 30 such schools for the years ending June 30, 1912, and June 30, 1913.

*Character and amount of aid*—Not exceeding \$2,500 a year on account of the maintenance of an agricultural and industrial department, and \$150 a year for each rural school associating itself with a Putnam school.

*For what purpose*—The maintenance of an agricultural and industrial department to consist of courses in agriculture, manual training, and home economics.

*Requirements to be met*—The employment of trained instructors whose qualifications are approved by the State High-School Board, and provision for a tract of land suitable for school garden and purposes of experiment and demonstration containing not less than 5 acres. “The instruction in such agricultural and industrial department shall be of a practical character, dealing with soils, crops, fertilizers, drainage, farm machinery, farm buildings, breeds of live stock, live-stock judging, animal diseases and remedies, production of milk and cream, testing of same, manufacture of butter and cheese, horticulture, gardening, plants, and such other questions as have a direct relation to the business of farming, including book-keeping and farm accounts. It shall also include systematic courses in manual training, and in home economics, as these are usually taught in public schools.”

*Administered by*—The State Department of Public Instruction through the State High-School Board.



*Benson-Lee Act*

*Law*—"An Act to Provide for the Teaching of Certain Industrial Subjects in High and Graded Schools, and Fixing the Amount of State Aid for Such Instruction, and the Manner of Its Payment," approved April 7, 1911.

*Number and kind of schools aided*—Any high school or graded school, the number being limited by a state appropriation for 50 such schools in 1912 and 1913.

*Character and amount of aid*—One thousand dollars annually.

*For what purpose*—The maintenance of a course in agriculture and either in home economics or in manual training.

*Requirements to be met*—The State High-School Board has prescribed rules requiring that the courses authorized by this law shall be maintained throughout the school year, and that in addition to the longer course each school shall offer a free winter short course of not less than 3 months. The instructors shall have had training in their respective lines in technical schools, those in agriculture being graduates of an agricultural college or having an equivalent technical training. Suitable rooms and equipment shall be provided, and the instructor in agriculture shall have a room exclusively for his work, shall be provided with laboratory facilities, and shall have not less than a continuous half-day for agricultural work. He shall make a close study of local conditions, and attend markets, horticultural meetings, meetings of creamery and stock-breeding and other associations, and such other gatherings as afford opportunity to make the acquaintance of farmers. The work in agriculture is to include textbook work, laboratory courses, special work along some line of local interest, such as dairying, corn breeding, poultry, etc., institute work in co-operation with the extension division of the State College of Agriculture, and a winter short course. Two satisfactory daily periods in an industrial subject or subjects are held to count as a credit.

*Administered by*—The State Department of Public Instruction through the State High-School Board.

## NEW YORK

*Law*—Education Law 1910, art. 22.

*Number and kind of schools aided*—Any city school or union free school.

*Character and amount of aid*—The sum of \$500 to each city and union free school for each independently organized school (here meaning nearly the same as "department" or "course" in other states) "of agriculture, mechanic arts, and home-making, maintained therein for 38 weeks during the school year and employing one teacher whose work is devoted exclusively to such school, and having an enrolment of at least 25 pupils and maintaining a course of study approved by him," and the further sum of \$200 for each additional

teacher thus employed. "The Commissioner of Education may in his discretion apportion to a district or city maintaining such schools or employing such teachers for a shorter time than 38 weeks, an amount pro rata to the time such schools are maintained or such teachers are employed."

*For what purpose*—To be used exclusively for the support and maintenance of schools of agriculture, mechanic arts, and home-making, independently organized but forming a part of the public-school system.

*Requirements to be met*—The school or course in agriculture, mechanic arts, and home-making must be maintained 38 weeks to secure in full the benefits of this act, must have an enrolment of at least 25 pupils, employ a teacher or teachers "holding a special agricultural-school certificate and devoting their entire time to the teaching of agriculture, mechanic arts, cooking, sewing, bookwork relating to agriculture, etc.," and must conduct a course of study approved by the State Department of Education. The State Department announces that "classes of book study only in agriculture and home-making are not entitled to the benefits of the law establishing these courses," and recommends that the "practical phases of work in these courses should extend through at least one-third of the weekly program, and more if school conditions permit."

*Administered by*—The New York State Education Department through its division of trade schools.

#### NORTH DAKOTA

*Law*—Laws of 1911, chap. 40, approved March 18, 1911.

*Number and kind of schools aided*—Any state high school, graded, or consolidated rural school having facilities to do agricultural work, the number being limited to 5 the first year, and an additional number of not more than 5 every two years thereafter. Owing to a veto by the Governor of the appropriation to carry out the provisions of this act for 1912, there will be no funds for these schools until 1913.

*Character and amount of aid*—Each school will be entitled to \$2,500 a year of state aid but will not participate in the state aid now being given to the state high schools—\$600 to \$800 a year.

*For what purpose*—The maintenance of an agricultural department.

*Requirements to be met*—The employment of trained instructors in agriculture, manual training, and domestic science, provision for a tract of land suitable for a school garden and purposes of demonstration containing not less than 10 acres, and located within one mile of the school building, the maintenance of special winter courses when necessary to accommodate a reasonable number of boys and girls, and the giving of instruction in soils, crops, fertilizers, drainage, farm machinery, farm buildings, breeds of live stock, stock judging,

animal diseases and remedies, production, testing and hauling of milk and cream, the manufacture of butter and cheese, the growth of fruit and berries, management of orchards, market garden and vegetable crops, cereal grains, fine seeds, bookkeeping and farm accounts, and all other matters pertaining to general practice.

*Administered by*—The State High-School Board.

#### TEXAS

*Law*—Acts of Thirty-second Legislature, chap. 26, sec. 3, approved March 6, 1911, became a law June 11, 1911.

*Number and kind of schools aided*—Any high school of the first, second, or third class. A high school of the first class is one which maintains at least four years of work above the sixth grade and employs at least two teachers of high-school subjects; a high school of the second class, three years and two teachers; and a high school of the third class, two years and one teacher.

*Character and amount of aid*—In high schools of the first and second class the state will duplicate local appropriations within the following limits: agriculture, \$500 to \$1,500; domestic economy, \$500 to \$1,000; and manual training, \$500 to \$1,000. In high schools of the third class state aid is confined to courses in agriculture, \$500 to \$1,000. No school may receive in one year more than \$2,000 from the state, and "such appropriation shall not be made more than twice to the same school." Fifty thousand dollars a year has been appropriated to meet the requirements of this law in 1912 and 1913.

*For what purpose*—Establishing, equipping, and maintaining courses in agriculture, domestic economy, and manual training.

*Requirements to be met*—The local board shall provide ample room and laboratories for teaching each subject and, in connection with the department of agriculture, shall provide a tract of land suitable to the production of farm and garden plants, and shall employ a teacher who has received special training for giving efficient instruction in agriculture. The State Superintendent of Public Instruction has decided upon a minimum of 3 acres of land suitable for agricultural purposes to be owned by each school applying for state aid for agriculture.

*Administered by*—The State Board of Education.

Grants of aid are made, upon recommendation of the State Superintendent of Public Instruction, only to those schools which give evidence that after state aid is withdrawn they will continue to maintain the special departments.

#### VIRGINIA

*Law*—Item in appropriation bill of 1908-9 and acts of 1910, p. 362.

*Number and kind of schools aided*—At least one public high school in each

congressional district (10 in number) in the state. There are 10 of these schools now in operation.

*Character and amount of aid*—In the appropriation bill \$20,000 a year was given for apportionment among these schools. By the act of 1910 the amount was increased to \$30,000 annually, and for the year ending February 28, 1912, the further sums of \$25,000 for the purpose of providing buildings and equipment for these schools, and \$10,000 for "traveling, demonstration, and extension work to be connected" with them.

*For what purpose*—Maintaining "a thorough course in agriculture, the domestic arts and sciences, and manual training, . . . and at least one-fourth of the school time shall be devoted to these subjects." All female students attending these schools shall be instructed in domestic sciences and arts as required subjects and may also elect agriculture. These schools may also be used as centers for directing farm demonstration work and other extension work throughout the several congressional districts, under regulations prescribed by the State Board of Education and the State College of Agriculture.

*Requirements to be met*—Not less than 5 acres of land convenient to the school to be cultivated by the students, as far as practicable, for demonstration purposes. Suitable buildings and equipment, including shops for elementary manual training, benchwork, and other forms of shopwork applicable to rural life. The district boards shall provide suitable equipment for domestic-science instruction.

*Administered by*—The State Board of Education.

By the acts of 1910 the boards of supervisors in the several counties of the state are authorized to appropriate such sums of money as to them may seem proper for the establishment, equipment, or maintenance of the schools referred to above.

#### WISCONSIN

*Law*—Laws of 1911, chaps. 544, 545.

*Number and kind of schools aided*—Any "free high school or a high school having a course of study equivalent" thereto.

*Character and amount of aid*—State aid amounting to \$250 for each special department maintained only in the high-school years, or \$350 for each such department maintained in the high school and "the three upper grades next below the high school." The maximum that any school can receive is \$1,050 a year.

*For what purpose*—To establish and maintain departments of manual training, domestic economy, and agriculture.

*Requirements to be met*—The carrying out of a course of study or outline of work in manual training, domestic economy, or agriculture, approved by the State Superintendent of Public Instruction, and the employment of qualified

teachers, whose salaries "shall be at least at the rate of \$60 per month." A course of study involving 4 units in agriculture and agricultural chemistry has been outlined, together with suggestions concerning apparatus, equipment, and supplies, which outline has been approved by the State Superintendent of Public Instruction and published as a bulletin of the University of Wisconsin.

*Administered by*—The State Superintendent of Public Instruction.

From these statements it will be seen that state aid varies in the different states from \$250 to \$3,000 to each school, that the number of schools receiving state aid is usually limited by the size of a lump sum appropriation, and this appropriation varies from \$10,000 in Massachusetts to \$125,000 in Minnesota.

Louisiana and Massachusetts give state aid for agriculture alone, Kansas for agriculture and home economics, while the other eight states include agriculture, home economics, and manual training or farm mechanics. The requirements to be met as to equipment and local expenditures are in the case of eight of the states partially included in the legislative enactments but in Louisiana, Maryland, and Massachusetts practically all requirements are prescribed by the state authorities designated to administer the laws. These state authorities are in every case members of the state board of education, or, as in Louisiana, Massachusetts, and New York, special officers appointed by the state board of education. In Louisiana the special officer in charge of agricultural courses in high schools is also an officer of the state agricultural college. In New York this officer is a member of the staff of the state department of education and he has charge of the corps of district supervisors of elementary schools who are appointed as the result of civil-service examinations and are required to give special attention to nature-study and elementary agriculture in the schools under their supervision.

The requirements to be met by the schools receiving state aid vary greatly in the different states, but in the main they include the employment of teachers having special training for their work, provision for suitable laboratories and laboratory equipment, land for educational work in agriculture, and the giving of courses of study approved by the state authorities in charge.

#### ADVANTAGES OF A SYSTEM OF STATE AID FOR AGRICULTURAL AND INDUSTRIAL SUBJECTS

As a system for the development of agricultural and industrial education, state aid possesses many advantages over any system depending solely upon local initiative. In the first place it usually insures better

equipment. These are primarily laboratory rather than textbook subjects, and adequate equipment is essential to success in teaching them. Laboratories, special apparatus, and land are needed, and these are much more likely to be provided if state aid depends upon them than under a system depending entirely upon local initiative for development.

Secondly, state aid carries with it a certain amount of state supervision, and this can more easily be made expert supervision than where everything concerning courses of study and methods of teaching are left to town or county superintendents. Three of the states have already employed experts to supervise the work in agriculture in state-aided schools, and at least one other state would employ a supervisor at once if the right man could be found. The lack of expert supervision is quite generally recognized as one of the greatest weaknesses of our public-school systems, and anything that will help to overcome this weakness should be actively promoted.

And finally, state aid will greatly stimulate the introduction of agriculture, home economics, and farm mechanics into our public high schools, and contribute materially to the success and permanence of this work. This will be accomplished because higher salaries will be paid and better teachers will be secured and retained. With the present demand for teachers of agriculture it is almost impossible for an unaided high school to secure an agricultural-college graduate and keep him for more than one year. Competent teachers of agriculture command higher salaries than those in any other high-school subject. One of the state-aided schools last year paid its teacher of agriculture \$1,400 and its principal \$950. It is not uncommon for agricultural-college graduates to get \$1,200 to \$1,500 the first year out of college, and in fact the average salary of 95 such graduates in 1910 who accepted positions as teachers or investigators was \$1,017. Very few unaided high schools would feel able to employ special teachers at such salaries.

But if agriculture is to be taught in public high schools, it is highly important that good teachers, well trained technically, be employed and retained year after year. There are numerous examples of high schools that have developed excellent work in agriculture, helpful alike to the pupils and to the farmers of the community, only to have it deteriorate greatly or lapse entirely with the loss of the teacher responsible for developing it. State aid would tend, and is now tending, to overcome this difficulty by making higher salaries available and by creating a

permanent general policy with reference to the development of high-school instruction in agriculture. Agricultural-college graduates are more willing to accept high-school positions in states committed to such a policy. The building up of a well-paid and stable teaching profession is a matter of the utmost importance in this country, and if the appropriation of a few thousand dollars a year by state legislatures will contribute to this end and at the same time help to prepare young men and young women for better service on the farm, in the shop, and in the home, it is well worth trying.

## IV. HIGH-SCHOOL AGRICULTURE WITHOUT STATE SUBSIDY

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W. H. FRENCH

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The public schools of America were created as institutions through which the state could protect itself, and insure its perpetuity by affording means for training the child-mind and thus making each individual more and more intelligent and more and more capable of self-government. In the earlier stages of our history any training beyond the rudiments was not possible in public institutions. Practically all advanced training was secured through the private school, academy, seminary, or college.

As time passed by, these private institutions either passed away because of lack of support or were transformed into preparatory institutions for still more advanced training to be received in a university. When this condition became apparent, the people, realizing the need of opportunities for broader training than the common schools of that time afforded, created the "union" school, which later became the modern high school. The high school was authorized by law, and its support made obligatory upon the people in the interests of broader education.

The term "broader education" in this instance meant instruction in the classics, languages, literature, mathematics, and science, and these subjects constitute the traditional course of study, the pursuance of which is supposed to result in education. Various definitions of *education* have been given in the past, and probably no single school has ever measured up to any one definition. If education is to "fit for complete living," or if it is to give one power, we must admit in the first instance that the high-school graduate is not fitted for life, and in the second instance if he has power it is only in the "potential" form.

In order to give the product of the public school real power, or active power, the work of the schoolroom must be attached to the activities of human life through the introduction of such courses as will enable the student, in the process of his training, to apply principles to the actual solution of some of life's problems. In other words, vocational courses will afford an opportunity for such application, and at the same time



enable the student to discover his own aptitudes and develop a real purpose in life before he leaves the public school.

The traditional course of study, as noted above, need not be discarded; in fact, it must not be discarded, but it may be modified. Without any doubt we are spending altogether too much time upon some subjects and in so doing we have excluded others which might become even more valuable than the usual subjects.

During the past fifty years we have been experiencing a period of educational development through successive transitions from one theory of education to another, and in this period of development in educational needs the world of commerce and industry has moved forward by rapid strides. For many years the great struggle in the business world has concerned itself with securing the largest possible utilization of natural resources, and at the same time the highest degree of efficiency. In order to assist in this movement the business world has called upon the educational institutions for extensive researches into the mysteries of natural forces. Scientific schools and universities have been taxed to their limits to meet this demand.

The establishment of colleges of agriculture and mechanic arts grew out of a realizing sense on the part of a few far-sighted business men that the forces of Nature were not being utilized to their limit, and also that we were in great danger of severe losses because the unwise use of these forces was producing deterioration in them. Soil which had once produced profusely was found to be practically worthless. The mineral resources of mother Nature were being exhausted and some means must be provided by which these losses could be made good. It is the special province, then, of our technical institutions to give such training to the human mind as will enable it to utilize wisely natural forces and prevent waste.

It is not the province of this paper to discuss the work of higher institutions of learning, and we therefore proceed to discuss the relation of the high school, this modern institution the doors of which are open to all classes of people, to the great problem of the use and conservation of natural resources.

The high school has been called the "people's college," which statement contains more or less of truth. The work done in this school includes what we call in this country "secondary education." The course of study covers a period of four years which is based upon the completion of the so-called "elementary branches."

The children enter the high school on the average at fourteen years of age, in the midst of the adolescent period. The process of man-making is going on, and for this reason the high-school period has been called the "formative period." The child enters the school generally with no fixed ideas of his future, and with little knowledge of his own personal aptitudes, largely because of the character of his previous training, or lack of training. If it is true that the period from fourteen to eighteen years is the formative period, then it would seem perfectly logical that during such time he should be introduced to the activities of human life; and his true development would consist in relating his knowledge of literature, mathematics, science, and art to the activities in which men and women engage. Probably the greatest function of the high school is to open the door of opportunity before boys and girls and give them somewhat of a vision of their own possibilities.

We have passed the point in educational history when it is particularly necessary to present arguments and reasons why agriculture and other vocational subjects should be taught. It has become perfectly clear that if there is good ground why agriculture should be taught in a collegiate institution there are equally good grounds for its being taught in a secondary institution.

The purpose of this paper is largely to describe what has already been done in agricultural education in those states which do not grant a special subsidy to individual schools for the introduction of such courses. There are various plans of operation, and we must remember that we are at the very beginning of agricultural education so far as it relates to secondary schools. Courses of study have not been thoroughly organized and we have not had time to judge of actual results. We have simply gone far enough to demonstrate the feasibility and the advisability of introducing a course of some kind in agriculture. We shall deal largely with conditions as they exist at the present time in the states of Illinois, Indiana, Michigan, Nebraska, and Ohio, these states not having as yet authorized state subsidy for any special courses in the public schools.

#### ILLINOIS

In answer to certain inquiries, State Superintendent Blair gives the following information:

"We have no laws requiring the teaching of agriculture in public schools. Something in the way of nature-study and the elements of agriculture has been

attempted in probably 2,000 out of the 11,000 rural schools. We have in this state several kinds of public high schools known as the 'village high school,' the 'city high school,' and the 'township high school,' and we have several hundred such schools. Out of this number probably 25 are presenting some work in agriculture.

"Thus far the teaching of agriculture has been a growing sentiment rather than an accomplished fact. Some county superintendents and able country teachers are making strong efforts to give the children of the country the benefit of such instruction. A few of the schools have seriously taken hold of the matter, and offer as good a course in this subject as in any other of the high-school subjects. We have no special secondary schools of agriculture in this state."

#### INDIANA

State Superintendent Greathouse writes:

"The teaching of agriculture in the public schools in this state is not required by law. It is encouraged and is taught in probably 2,500 elementary schools and 200 high schools. Teachers are not required to pass an examination in this subject, and in many places the work is not well done. There are no special schools of agriculture of secondary grade in this state."

#### NEBRASKA

State Superintendent Bishop, writes:

"Some instruction in agriculture is probably given in one-eighth of the rural schools, and in 108 public high schools. The subject of agriculture is presented in the ninth or tenth grades, and consists of a one-year course similar to a course in botany or any other subject which continues through one year, and is presented by means of a textbook. Nebraska has two special schools of agriculture of secondary grade, one recently established."

#### OHIO

State Superintendent Miller writes:

"Agriculture is taught in all township and village districts. The Board of Education determines in what year or years the course shall be given. At the present time in nearly all of the schools the instruction consists of a one-year course in the ninth or tenth grade, based upon a textbook."

#### MICHIGAN

In Michigan there is no law requiring the teaching of agriculture in any public school. Some definite instruction is being given in about 800 of the 6,500 rural schools, and regular courses in agriculture have been introduced in 15 high schools. These courses consist of one unit in each of the four high-

school grades, and the work is planned so as to develop a department of agriculture along the same lines that we develop departmental work in other subjects. In addition to these schools there are about 20 others which are giving some instruction in agriculture at some time during the high-school course, mainly by the use of an elementary textbook. In addition to these we have two special county schools of agriculture. These schools are in part supported by the state and are not germane to this discussion.

The subject of agriculture in the 15 high schools is taught in each case by a graduate of an agricultural college; and in several of the other schools where supplemental courses are given the instructors have had some special training in the subject of agriculture. The course of study covers the following subjects: Agricultural botany, horticulture and entomology, farm crops, the types of live stock, breeding and feeding live stock, dairying, soils, and farm management.

It will be seen from the foregoing statements that so far as secondary agriculture in public schools is concerned, we have hardly gone far enough to draw any definite conclusions. Enough has been done, however, to demonstrate certain things. Among these it has been clearly shown in each state that there is an interest on the part of the people in agriculture as a subject of study; second, that agriculture correlates nicely with other science subjects; third, that we can develop intellectual power through it; fourth, that the lives of many young men are redirected and turned toward agriculture; fifth, that practical results in farming processes in the community are secured.

It is true that for years the farmers have berated the agricultural colleges, and have ridiculed the idea of learning practical agriculture in a school. But the quiet and effective work of the agricultural colleges and high schools has demonstrated beyond question the possibility of developing a farmer of expert type through the process of school education, and public sentiment is now rapidly swinging around in favor of collegiate agricultural instruction, and the same sentiment is being rapidly converged toward the public school. In many communities we find an insistent demand on the part of the farmers that agriculture shall be taught in public schools. Thus far, as Superintendent Blair indicates, the introduction of agriculture into the public school has been accomplished through the state department of education, the county superintendent of schools, and special men representing agricultural colleges. These men have presented the matter to local superintendents and boards of education by showing the opportunities for practical work,

and the necessity of vocational instruction. Through these agencies the public interest has been aroused. In this connection we should mention, also, the assistance which has been rendered in many cases by progressive farmers who were members of the Grange or farmers' club, or some other farmers' organization.

The people are manifesting an intense interest, and yet they are not demanding, in the foregoing states at least, that this new feature of educational work shall be rushed into the public schools without due consideration, or without the best possible previous organization and classification.

In all of these states, boards of education have authority to introduce any subject into the course of study which, in their judgment, is deemed of educational value. There is no need, therefore, for any permissive legislation; and the introduction of the work depends entirely upon the active interest of the school authorities.

It is a matter of common knowledge that if the state or the nation offers any special financial inducement to perform any public improvement, the people respond quickly because of the natural desire to get their hands into the public treasury. Proof of this is shown wherever state aid is offered for the building of good roads, canals, drainage, or any other improvement. It necessarily follows that if the state should offer a certain sum of money to be given to any school district which would introduce a course of agriculture, that such district would make strenuous effort to comply with such a law in order to secure the money. The effect, therefore, of state subsidy will be to stimulate the introduction of agricultural courses.

At the present time all vocational courses are new, and thus far lack development, coherence, and organization; and state educational institutions have given no particular attention to the training of teachers for this particular phase of work. Agricultural colleges have confined their efforts to instruction in purely technical lines, and have not given the instruction from the standpoint of teaching, or with even a "pedagogical squint." For this reason there are very few persons who are really fitted to undertake instruction in secondary agriculture. As has been stated before, the student is in the formative period, and an error of judgment on the part of the teacher, or an error in the presentation or organization of the work, may bring disastrous results to the individual student in the end.

In spite of all these facts, however, if the state offers the subsidy, the school district, the teacher, and all other interested parties are at once combined to introduce the course. With few exceptions the instruction in the one-year courses of agriculture is given by a teacher who has had no special preparation for the work, and thus has no power to enlarge upon the elementary text which the student uses. In Michigan, in all of the high schools where regular courses are presented instructors have been secured who are graduates of an agricultural college, and in addition have had special courses in general pedagogy and agricultural pedagogy.

It would seem, therefore, a wiser policy to introduce agricultural courses slowly and with trained teachers in charge, having back of the work a public sentiment which is being properly organized, and which will become permanent, rather than to rush into the work at the speed which would, without any doubt, follow the offering of state subsidy. It is difficult for any movement to travel very far in advance of supporting public sentiment. It seems to us that public sentiment, where state aid is offered, would be more largely based upon the desire to secure such funds, than upon a real interest and desire for the development of agricultural instruction. Up to the present time my observation leads me to the conclusion that while state aid would, without any doubt, stimulate the introduction of these courses, there is great danger of overstimulation, with a corresponding danger of poor results.

At this stage in the progress of industrial education it seems that it would be wise public policy for the several state institutions to give special attention to the preparation of vocational teachers. The agricultural college will thus find a new field of work, and a field through which it can ultimately reach all sections of the state and influence them effectively and at the same time conservatively. In my opinion a one-year course in any vocational subject is not sufficient; and further, it is my opinion that every vocational subject should be taught by a specially trained teacher. I do not believe it wise public policy to introduce such courses and then leave the instruction to one who has merely received training in the traditional subjects.

Further, if agriculture is to be successfully presented, sufficient time must be given to each of the great fields, or subjects, to develop some definite results in the student. We are giving three years to mathematics, four years to science, and at least an equal amount of time must be given to the subject of agriculture in order to give it a proper standing

in the regular curriculum. This fact alone will impress the student with the importance of the subject.

The intellectual element has always been dominant in education; and while we may give physical, moral, intellectual, and industrial instruction—and in my judgment all these courses should be given—still, in the work of public education the intellectual element must continually be dominant. We are not introducing courses in agriculture merely in order to turn out trained farmers, but we are introducing these courses in order that the student may relate general science to agricultural science, and leave the school with an intelligent knowledge of the application of the scientific principles, and with a vision of what he can do in the application of those principles in actual farm activities. In other words, we seek to dignify the subject of agriculture by making it a subject of study, and to impress upon the student the fact that while much has been said about the dignity of labor, there is absolutely no dignity connected with any labor which does not evolve a finished product. That is to say, the farmer who can produce perfect corn, or perfect sheep, or perfect clover is no longer a mere farmer; he is now a professional man because of the perfection of his product, and there attaches real dignity to the process of evolution. What the country needs is intelligent farmers, professional farmers, or men who are artists in their line.

If we are to secure these results we must take time to develop a course of study which shall be logical in its arrangement, contain proper subject-matter, and be presented to the student by an intelligently trained teacher.

It is not the purpose of this paper to discuss the merits of courses now being presented. As a matter of fact, there are about two hundred schools in the state of Ohio in which a course in agriculture is presented in one year of the high school, usually the tenth grade; and as stated above, there are something over one hundred high schools in the state of Nebraska presenting a similar course, and about two hundred in the state of Indiana. For the most part these courses are presented by teachers who have not received special training; yet the fact that the student actually does study agriculture, actually reads the bulletins and pamphlets from his state college of agriculture, as well as from the national department of agriculture, must prove of immense benefit to him. The value of these courses we cannot determine. We are satis-



fied that they do contain valuable educational elements; that they result in a higher degree of intellectual training, and afford opportunity for the application of the general principles of science which the student receives through his courses in botany, physics, and chemistry.

In Michigan we are attempting to develop a course in agriculture which shall constitute four units. The average high school presents fifteen- or sixteen-unit courses, and a fair balancing of the courses, in our judgment, would require four units of cultural work, eight units of disciplinary work, and three or four units of vocational work. The vocational instruction may include courses in agriculture, home economics, art, and trade courses, each elective. This plan is being pursued in two of the city schools in Michigan, and thus far is producing excellent results. In this way we develop industrial departments in the high school and attach the school to some of the chief activities of common life, and in the process of instruction during the four years of the high school, as the student comes in contact with ordinary scholastic material and with manual operations which require intelligence, we give time for the development of aptitude, knowledge, and skill.

The introduction of industrial departments in the high school will place such instruction before practically all of the young people of any county or community, and also reach the people of an entire state. At the same time we make use of educational facilities already organized, and thus render unnecessary the creation of new or special departments for agricultural or industrial instruction.

These seem to be the facts and conditions as they exist at the present time. After public sentiment has once been aroused, and the school authorities have developed a reasonable and workable course of study, it would seem then perfectly proper for the state to offer its aid in the support of vocational courses.



## V.A. SHORT COURSES AND EXTENSION WORK FOR AGRICULTURAL HIGH SCHOOLS—IN THE SOUTH

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The purpose of the agricultural high school is to improve rural life. To accomplish this it must put itself in contact with the people who live on the farms. To reach these people it must make use of every device of demonstration and extension methods. I began my work as an agricultural high-school teacher with the usual assumption that if the younger generation can be educated in the best teachings of agricultural science and practice, it will quietly work a great revolution in the agricultural methods and life of the community.

I have not found the problem so simple. In the first place, country boys do not usually go to high school at all. The instruction in the rural schools is so bad and the terms are so short (5 to 6 months) that a boy of only average ability to learn is not ready for the high school until he is so old that the desire to learn is overcome by the need to earn. Only those boys try to finish the high school whose tastes and ambitions lead them toward the professions. In theory the agricultural courses should attract country boys to the high school; in fact, it is doing so at a rapidly increasing rate; but I have, like others, found myself face to face with the fact that only a distressingly small proportion of the boys do attend high school and that those boys are not as a rule farmers' sons and prospective farmers. This being the case, how can the school fulfil its mission?

My first thought was to do as the agricultural colleges did under similar circumstances, i.e., establish short winter courses for the sons of farmers. Notwithstanding my lack of room and equipment, I tried the plan and found it successful. There are within the reach of any agricultural high school a hundred young men who can and should take advantage of such a course lasting six to eight weeks and devoted to the subjects of greatest local interest. There are, however, in the smaller schools, such obstacles in lack of room, lack of equipment, and lack of

teaching-force as to make a full realization of the plan impracticable. Such a course would require the time of one person the greater part of the school year to interview the students and arrange lectures and laboratory sections. Accordingly as the work of teaching agriculture to the regular high-school classes has increased by the growth of the school and the increasing popularity of the subject, I have been, for the time, forced to give up this interesting and valuable part of the school's work. When, by federal aid or more liberal state appropriations I can have the necessary teaching-force and laboratory room to carry on short courses, I expect to take up the work again, and by a personal canvass of the surrounding territory offer a short course which is equal, so far as it goes, to that of an agricultural college. I have given such a course for two years and know of its possibilities from experience.

Farmers' institutes have been my most successful line of extension work. When I came to Manassas in 1908 I found no live organization of farmers with whom I could co-operate. I called a meeting of the farmers and after a pleasant session at which they were addressed by the late Dr. Seaman A. Knapp, I proposed that we form a permanent organization. The idea was adopted and a most successful series of meetings resulted. During the three years since the organization of the farmers' institutes of northern Virginia we have held twenty-two meetings, including a four-day traveling school of agriculture under the direction of the Virginia Agricultural College, a field demonstration in spraying, and three corn shows. These meetings are held in the courthouse on the third Friday of each month from November to April, inclusive. The average attendance for all meetings has been about seventy-five farmers, besides townspeople and school children.

Recognizing that unless the farmers are behind a school of agriculture it cannot be successful, I have endeavored to make this association the connecting link between the school and community. I believe that to these institutes more than to any other one factor I owe the success which I have had in making the agricultural school an integral part of the rural life of the district.

The success of the institutes has been due in most part to the high class of speakers which I have been able to secure from the U.S. Department of Agriculture and to the assistance and advice so freely given by Mr. D. J. Crosby, expert in agricultural education, of the Office of Experiment Stations.

As the winter days were cold and the roads long and muddy it occurred to me to utilize the class in domestic science by letting them serve a lunch to the farmers and their wives. This was done with the greatest success. The girls enjoy cooking and serving the meal and the visitors enjoy the hot, tasty, nutritious food which is served to them at the actual cost of the materials. The lunch has become a regular feature of the institutes and has, in no small degree, contributed to their success. At first these lunches were served at tables, but with the increasing numbers, the plan of a buffet lunch was tried with great success. The farmers get their well-filled plates and stand or sit in small groups eating and visiting in the most informal manner.

Valuable as the information given by the speakers has been, the social intercourse is even more valuable. This is a country of big farms and bad roads, resulting in more than the usual degree of rural isolation. This isolation has been intensified by the frequent changes in the ownership of farms since 1870, until, as a natural result there is but little of the community spirit. I can say without boasting that the school has done more to break up this isolation and develop a community feeling in three years than all other forces had done in a decade.

This year I am attempting to break down still further the barriers which distance and bad roads have imposed between the farmers by a series of meetings for farmers' wives. At these meetings they can become acquainted with each other, discuss problems of mutual interest, and listen to lectures on household problems by experts. In the forenoon both the farmers and their wives will meet in a session of general interest, while after the lunch the men and women will meet in separate sections, each with its own speaker. Excellent speakers have been engaged and there is every reason to expect that this department will prove to be as popular and useful as the other. Thus I am attempting to make the agricultural school the social and intellectual center of the newly aroused community life. The farmers' institute serves a double purpose, for it gives to the farmers what is best and newest in agricultural science and brings to the school the hearty support of those to whom it must look for its best pupils.

Nearly every phase of our local agriculture, such as corn, dairying, spraying, and feeding, are taken up in the course of the year and opportunity is afforded to have each topic brought up to date by its expert. Opportunity is also afforded for questions and discussions which often

prove more valuable than the lecture itself. Not all the time is given to scientists, but at each meeting some successful farmer is asked to give his method while the man of science gives the reason and principle. The agricultural classes attend the institutes and write reports of the lectures which serve as material for both English and agriculture. Some of the best English work of the school has been done on these agricultural topics.

Another successful line of work has been in the rural schools. As 75 per cent of the school children and practically all of the next generation of farmers attend the one-room rural schools, I have endeavored to reach them by such methods as would quickly interest them and were at the same time within the reach of my very limited resources. My efforts to improve rural schools are along two lines, the schools themselves and the future teachers who are now in the normal training classes.

As all farmers keep cows and raise corn, I chose milk testing and seed-corn selection as the best topics for my work in the rural schools. I borrowed a Babcock milk-tester from the Dairy Division of the U.S. Department of Agriculture, and with it and a small exhibit of choice seed corn I visit a country school each week. If the lesson is to be on milk testing the pupils bring samples of milk and with these I instruct both pupils and teacher in the operation of the test. Some of the parents are present giving me an opportunity to interest them in the work of the agricultural high school. I leave the machine at the school for a week so that all the pupils may become familiar with it and able to test the richness of the milk from each of their cows. The pupils then write me letters telling of their results, some of which I give here:

BUCKLAND, VA., November 9, 1911

DEAR SIR: We have been testing milk every other day this week. We have tested six samples of milk. We first put in the milk and then the acid, then turned for five minutes; then we took it out and filled it up to the neck of the bottle and turned it for two minutes; then took it out and filled it up to till all the butter-fat was up in the neck of the bottle; then turned for one minute more. The cows we tested were one of Doctor Brown's, two of Grahm's, one of Hall's, and our's.

I am nine years old.

WILL T. SWEENEY

BUCKLAND SCHOOL, VA.

BUCKLAND, VA., November 9, 1911

*Prof. H. F. Buton, Manassass, Va.*

DEAR SIR: We have been using your milk tester every day since you went away. We have tested six cows, there names were: Terry, 4.2 per cent, was Sweeney's; Mollie, 6.2 per cent, was Dr. Brown's; Chery, 4.7 per cent, was Grahm's; Boss, 4.5 per cent, was Hall's.

The way we tested it is: First, we would draw the milk up to that little rim on that long glass and then we would pour the acid into the milk and then we would shake it until it was black and then we would turn it five min.

Then we would turn it two min. more. Then we would pour the hot water in until all the fat was up in the neck of the bottle far enough so that we could see how much there was.

My name is John R. Sweeney—10 years old.

BUCKLAND SCHOOL, No. 1.

I have dozens of such letters and they show that the children know far more about the composition of milk than most of the parents. I have found this lesson the very best to introduce the subject of agriculture. It is interesting, almost spectacular, with the strong acid, the mysteriously hot bottles, the whirling wheels, and finally the clear yellow fat that tells that old "Blossom's" milk is twice as rich as that of "Spot." Still more important is the knowledge that it conveys to the parent as to the relative value of each cow. It is the beginning of the exact knowledge that makes for better farming.

At times I vary the lesson by giving one on corn judging. After this lesson it is much easier to teach about fertilizers and tillage. A seed-corn germination box is easy to make and to carry about. I prefer the sand-box type with strings for fences, as shown in Crosby's *Exercises in Plant Production*. The tiny fields appeal to the children and the sight of the plants growing in sand is much more convincing than the cloth and sawdust box. The sand-box type is, however, much heavier to carry about and more liable to spill than the Iowa tester made by marking cloth into two-inch squares, on each of which is placed five kernels taken from an ear of corn and the whole covered with a second cloth and sawdust to hold the moisture. As the use of fertilizers is almost universal and their purchase is one of the principal items of money outlay, I have found that a lesson on the composition and value of fertilizers is always appreciated. It may be made intensely interesting by showing the peculiar properties of phosphorus, potassium, and nitric acid.

After showing the spectacular side of the chemistry of fertilizers by a few experiments, such as lighting a fire with water, burning iron, and spontaneous combustion, I give an effective lesson on the arithmetic of fertilizers and the advantages of home mixing and co-operative buying.

I do not wish to convey the impression that the work is easy or the returns large. In those parts of the country where the soil is productive and the people prosperous and intelligent the work gives large returns. In such a neighborhood there is always some crop or product with which several of the patrons have made a success. In such a neighborhood and on such a topic I get a lively and intelligent response from the pupils which makes me feel sure the effort has resulted in a gain to the community and a strengthening of the bond between the farmers and their school. Not all the schools are so favorably situated. There is in the southern part of my territory a great belt of country between tidewater and Piedmont, called "The Forest," in which both agricultural and social conditions are most backward. Here my work of extension teaching is very difficult and the results meager. The population is sparse, the roads impassable, and agriculture unprofitable. When people derive their living from cross-ties and stave-bolts, it is a long step to interest them in Jersey cows and well-sprayed orchards. Yet despite the discouraging conditions I am doing much of my work among these schools, counting the greater need as an equivalent to the smaller returns.

This country-school work needs doing and if honestly done will bring support to the school and carry light to those who most need the help. Let no one who values comfort undertake this form of extension work, for there are long rides through deep mud, hurried starts, late returns, and cold rains as the usual accompaniments of the trips. I have found without exception that the teachers are glad to have me come and will co-operate with me in every possible way. The patrons when not apathetic are well pleased to have agriculture introduced in the school. Among the more thoughtful I find a widespread sentiment that their occupation has been slighted and neglected in the schools, and a full appreciation of any effort to improve conditions. There is urgent need for a wider and more sweeping regeneration of the rural school before the country child shall come to his rights, but if we wait for that time to come, many years may be lost.

I am making an effort to reach the teachers of country schools by my work with the normal class of the high school. To this class I

endeavor to give such lessons as will be most usable in their schools—testing the germination of seeds, tests for the simple food substances, starch, protein, fat, and sugar, the physical properties of soils, etc. The arithmetic of fertilizers is gone into in detail, as is the method of figuring out balanced rations. Especial attention is given to showing these future teachers how to set up and operate such experiments and demonstrations as will fix forcibly on the mind of the child some of the broader principles that underlie the practice of agriculture.

By milk and cream testing I have done much to bring the value of the school home to the farmers. I have spoken of the educational milk testing in the rural schools, but in the agricultural high school I test some 200 samples of milk and cream a year, the cream-shippers in particular finding it a means to avoid being cheated on the one hand and getting into trouble with the milk inspector on the other. If one of these men buys a cow he tests her milk that he may get a good one; if he sells a cow he tests her milk in order that he may sell a poor one. We have a cow-testing association of about a dozen enterprising dairymen who have stopped guessing about their cows. As the business of dairying grows this activity of the school will further increase. Several times in the past year I have had requests from local doctors for more complete analyses of milk, from which they are able to make up special modified milks for infant feeding.

An excellent barrel spray-pump furnishes means for another line of extension work. This pump is loaned out to people who wish to try spraying but have no suitable machinery. Spraying materials, such as concentrated lime-sulphur, arsenate of lead, and caustic-potash soap are furnished at cost. Some of the more advanced students go out and do small jobs of spraying, thus acquiring a proficiency that the limited equipment of the school cannot supply, and at the same time get people started at spraying who have never before attempted it. Last spring we used in this way more than a barrel of the concentrated lime-sulphur with arsenates in proportion. This year two barrels have been ordered and a still larger amount of work will be done. This is not a fruit-raising section and spraying is still an unusual practice, yet last year a dozen new barrel sprays came into the community as a result of our spraying propaganda. In many cases I have gone out to the orchards, set up the spray-pump, and instructed the owner in the adjustment of the nozzles.



In the village I am constantly called on to prescribe for the ailments of flowers, trees, and shrubs, and to destroy scales, plant lice, caterpillars, and miscellaneous "bugs." Outside of the village I am more and more frequently called on for expert advice on alfalfa, drainage, locations for orchards, sick cows, sick trees, and the like. Sometimes I can help and sometimes not, but the significant fact remains that there is a growing tendency on the part of the farmers to recognize the school as theirs, to be called on for all kinds of aid.

This year my extension work has been greatly facilitated by a fine stereopticon with a steel tank of compressed acetylene gas. After giving a lesson to a rural school I stay and give an evening illustrated lecture on some such topic as corn or dairying cattle. These evening meetings are always well attended and enable me to meet large numbers of people whom I can reach in no other way.

There are two excellent newspapers in the county, both of which have been liberal in their space and helped in their editorial columns. There is seldom a week when I do not have an article in one or both of these papers on some topic of timely interest. I review the lectures of farmers' institutes for those who were not there; I review scientific publications or give advice on the care of a crop or the control of some insect. These and other subjects furnish me a means of taking the benefits of the school out to the people on the farms who most need the aid and who are least able to secure it by regular instruction in the school.

If it be urged that my work begins at the top instead of at the bottom or that it is desultory, unsystematic, and without logical sequence, I must acknowledge the truth of the criticism. I can only say in defense that I am almost entirely without resources for teaching many topics, and that I am struggling to carry some message of a new and better agriculture to as many of my people as I can reach. I am doing all of this work in addition to the duties of a high-school director, teaching a class of twenty-eight in the last grammar grade, four classes in agriculture and three in chemistry in the high school, making six class periods a day, besides such allied activities as a Boys' Corn Club, thirty-two experimental plats, a forestry association, and a troop of Boy Scouts, so it can readily be seen what a man could do in extension work had he his whole time to devote to it.



## **VB. SHORT COURSES AND EXTENSION WORK IN AGRICULTURE FOR HIGH SCHOOLS—IN THE NORTH**

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To those interested in education and who read the conflicting opinions relative to the success or failure of the agricultural teaching work in the various secondary schools of this country it is at once apparent that there is as yet no generally accepted policy as to what can and should be done by way of advancing agriculture through our secondary educational system.

It is not the intention in this paper to discuss an agricultural curriculum for a four-year high school. There is little at present to be added to the plans offered in the publications upon that subject already available from the U.S. Department of Agriculture and from the University of Wisconsin. The subject-matter to be discussed here has to do with the short courses and extension work in agriculture, for high schools and special secondary agricultural schools, now existing in these institutions in northern United States. The reader's personal judgment is depended upon for the analysis of values.

It is to be assumed that a competent and well-trained agriculturist is in control of the situation and that he is not to be hampered for want of authority or from lack of funds necessary to advance the work. The efforts of an institution must be along some well-defined lines, and (from an agricultural standpoint) we shall discuss the content of the work under four headings as follows:

### **I. SHORT COURSES—**

1. Sixteen weeks young people's course
2. Farmers' lecture course
3. Farmers' one-week school
4. Institutes and summer tours

### **II. EXTENSION WORK—**

1. Demonstrations on the individual farm
  - a) Field
  - b) Building
  - c) Live stock

**2. Organization of societies**

- a)* Cow-testing societies
- b)* Grain- and corn-growing associations
- c)* Social centers

**III. INFORMATION BUREAU—**

- 1. Personal consultation**
- 2. Seed testing**
- 3. Butter-fat tests**

**IV. PUBLICATIONS—**

- 1. Bulletins and newspaper contributions**

**I. SHORT COURSES**

**1.** Short courses of sixteen weeks are intended for those young people who can attend only that part of the year between the completion of the fall harvest and the beginning of the spring work. These young people are for the most part students who have had no institutional training for the business of farming which they expect to follow and who would be found in no school whatever were it not for these short courses now being offered.

The following two-year short course is effective in a Wisconsin secondary school as a continuation course for young men who are training for the business of dairying. It is assumed that they have completed the district school or that they have reached the age where a more mature judgment will aid them in their work.

**FIRST YEAR—SIXTEEN WEEKS**

**Farm Crops:** A study of seeds—crop rotation and economic factors.

**Dairying:** A study of the herd—the milk—the market.

**Composition, penmanship, and spelling.**

**Civics and history.**

**Farm arithmetic and agricultural engineering.**

**SECOND YEAR—SIXTEEN WEEKS**

**Soils and commercial geography.**

**Stock judging and feeding.**

**Composition and spelling.**

**Bookkeeping and farm law.**

**Blacksmithing and power machinery.**

These studies are definite and there is sufficient live material to create an interest for the work. This course has been successfully offered, beginning four weeks before the Christmas holidays and continuing through the sixteen weeks. A census covering three years of this work shows that, from the average of forty (40) students attending a local school for such a course, not one of these young men would have been in any school whatever had it not have been for such a special course of instruction.

2. The farmers' lecture course consists of a series of lectures upon agricultural subjects of interest alike to students and adults. This course covers one week at the local school and in Wisconsin the time of holding it is during the sixteen weeks' course when it is possible to secure speakers from the State University. This work not only gives instruction along special lines but it creates in those homes represented an added interest in the school work and materially increases the efficiency of all extension efforts.

3. The one-week farmers' school is for the adult farmer who is not a student but who is anxious to gather information that will aid him in increasing his financial returns.

During the one-week course regular classwork is given in subjects directly related to local farm problems, viz., corn and grain judging, milk and cream testing, stock judging, care and management of the herd, etc. This course has been well attended and where charges of one dollar (\$1.00) were made conditional to enrolment the numbers have increased rather than diminished. All this seems to point to the fact that the farmer is willing to accept and that the time is ripe for a more general offering of agricultural teaching in our secondary schools.

4. Institutes and summer lecture tours are designated as instruction given at meetings held at points other than at the school. These meetings take place within striking distance from the school. They are usually afternoon or evening meetings held on Friday or Saturday when the school faculty can be present to discuss subjects of local interest.

The summer lecture tours are arranged in a series which allows of several meetings during the day at different points. The more successful of these meetings have covered periods lasting the greater part of a week and the speakers were taken over the circuit by automobiles. From three to five meetings could be held each day at points from ten (10) to

twenty (20) miles apart, and, at times, by using two autos, it was possible to begin a second meeting before closing the previous one.

To illustrate the effectiveness of such meetings in getting at the people, the attendance was kept during one of these three-days series held in northern Wisconsin and the count gave 2,700 adult farmers who listened to the speakers.

The local school has, in all these courses, an excellent opportunity to connect up with the state agricultural college and not only to increase the efficiency of the local institution but, through the school, to enable the college to become more effective in its aid to the farming community.

Thus far there has been presented here the definite instruction as given by the faculty and outside assistance to groups brought together for the purpose. The other lines of work promoted by the local institution are upon a co-operative basis and with the individual in direct relation to the farm.

## II. EXTENSION WORK

Let it be understood that in all the agricultural work to be done by these secondary schools there shall be no attempt made to engage upon the experimental side as a part of the school's activities. The fieldwork is to be purely demonstrative of the already accepted agricultural practices and facts; it is in the pushing of them among the agricultural people that the school can do its most effective extension work.

One should absolutely condemn the use of land that, in connection with a secondary institution, is a "show off" proposition. A field is a valuable laboratory when used as such, but to have a line of plants growing in plots arranged so as to be agreeable to the eye and with no definite educational aim in view is poor pedagogy indeed.

1. Demonstrations on individual farms will be guided largely by the wants of the individual and by the agricultural development needed in a community. (a) The well-known improvement in the quality of corn and barley upon the farms of Wisconsin is the direct result of the extension work done in the rural sections of the state. The alfalfa demonstrations, the tuberculosis demonstrations, and other similar lines of work pushed by the secondary institutions in Wisconsin have shown in a remarkable manner what benefits can come through local demonstrations.

(b) As an example of what can be done by way of aiding the farmer

with his building one need only to point out the work of the several special agricultural schools in Wisconsin in the building of concrete silos. These schools furnish at cost the forms and plans for the construction of silos. The cost of construction has been reduced over one-third and, in some instances where the farmer had sufficient help or where two farmers joined forces, silos sixteen feet in diameter and thirty-six feet high were constructed for one hundred and eight dollars (\$108), and this at points where the regular contract price had been over four hundred dollars (\$400). In addition to the fact that the price has been so far reduced that a farmer of very limited means can now construct a silo (that most necessary adjunct to a dairy farm), it is also true that the concrete is superior to the old stave silo.

(c) The extension work in live stock from the secondary schools in Wisconsin has developed mostly along the lines of dairying, aid in selecting a desirable sire, aid in milk-fever cases, testing for tuberculosis, and in other matters where expert knowledge could assist the farmer with his live stock.

2. The organization of local community associations in the various districts is a most effective means of improving agricultural practices. Many an individual farmer who cannot be reached through public meetings will join an association to which his neighbors belong. (a) The cow-testing associations in Wisconsin have effectually shown thousands of our dairymen that certain cows were being kept at a loss, and that by clearing the herd of these "boarders" the profits are increased. The following quotation from a secondary institution in Wisconsin will illustrate the part it takes: "Cow-testing—To encourage the improvement of the dairy interest among farmers the school assumed charge of the cow-testing work and through its official testers is testing over 750 cows at the present time. A charge of \$1.00 per cow per year is made for doing this monthly test work."

(b) The grain- and corn-growing associations organized in the rural districts have pushed the work of grain improvement among their members until Wisconsin as a state has come to be the source of the supply of seed corn and seed barley for many sections of other states.

(c) Social centers—a project now demanding much public attention—have been doing very effective work in practically every county in Wisconsin having a special school of agriculture. This was indeed the first satisfactory extension work of these schools toward reaching the farmers

in their homes. Small local clubs are organized and, stimulated by the occasional attendance of a member of the school faculty, they are a powerful influence in developing the natural resources of a community. The meetings are largely informal social occasions and, after discussing topics of special and timely interest, luncheons are served and often the entire neighborhood makes up the membership.

### III. INFORMATION BUREAU

As a bureau of information relative to agricultural questions the office of the agricultural teacher is open daily.

1. The instructor seeks personal consultations with individuals having perplexing agricultural problems for solution. It is not expected that the teacher will always be able to give aid at the moment, but he is generally in a position to locate the desired information through correspondence or otherwise. Here again the splendid active assistance of the entire faculty of the State Agricultural College is available.

2. An increasing number of seed samples of all kinds are tested each year by the school. This work often saves a farmer from seeding his fields with noxious weeds, and the germination tests will insure him against using a seed of low germinating power. Many a farmer has wondered why his seed did not grow or has perhaps wrongly accused the crow of weakening his stand of corn.

3. In a dairy country we have come to measure our milk and cream by the percentage content of butter-fat. The method of determining this is, thanks to Dr. Babcock, general property, yet but a small number of farmers can operate the test. Here then is a valuable aid that the school, through its laboratory, can give to the individual farmer who brings his sample of milk or cream for analysis. Cases are in evidence where dishonest purchasers are trimming the butter-fat test of their patrons. If a local school stands ready to make a fair fat-test at any time there certainly is no objection to be offered by the honest dealer, and on the other hand it is a check upon dishonest practices where these agricultural interests are being victimized.

### IV. PUBLICATIONS

Regular bulletins and contributions to local newspapers are necessary factors in the extension of agricultural interests. The publications answer the local pressing questions without delay. They are read with

added interest in all sections where the local school has been active; thus personal contact is taken advantage of to a high degree.

It should be understood that all extension work to be most effective should be preceded by a careful study and analysis of the community and its needs.

Educators disagree as to whether these short courses and extension work in agriculture shall be given in a special secondary school created for the purpose or be offered by the present high schools. A consideration of the arguments favoring the special school leads one to believe that when the high schools shall offer these short courses of from twelve to sixteen weeks during the winter they will have taken away one of the stock arguments favoring the special agricultural school as found in Wisconsin; indeed this special school will have served its purpose in that it has forced upon educators the recognition of this work. This, however, can be made possible only when the teaching profession shall have accepted the theory that any study is cultural that trains for social efficiency in the individual. The school that is training the youth to become a better farmer and a more useful citizen is certainly contributing as much to society as a school that is methodically clogging the natural resources of a youth by giving him "cultural subjects for culture's sake."

Today one need not be alarmed if he finds himself leaning toward utilitarianism in his views relative to educational subjects; indeed it is quite permissible, and financial returns can well be a factor in the general construction of any modern school curriculum.

On the other hand those directly interested in the executive side of agricultural short courses and extension work must pause in contemplation of the situation. Superficial work cannot long endure, and extension work in the hands of a group of easy talkers with a ready response to every question is often incomplete in its ultimate effectiveness. Extension work is not intended as an advertising bureau, but the fundamental keynote should be "service to men." Leaders with depth of thought are taking hold and improvement in methods and men means a higher ultimate efficiency.

In this work the agricultural people have been open to the accusation of being spectacular and possibly arbitrary at times. If this is true the only defense is that the ends justified the means. The appeal to the farmer in all this educational work has been from the standpoint of

financial returns; the dollar has always been uppermost. Educators of a conservative frame of mind have condemned this attitude as unprofessional, but in the face of all this the movement has been getting results. It is even true that the farmer has increased his bank account because of this aggressive work in the introduction of a new agriculture, and it is equally true that the salary of the conservative educator has not increased in like proportion. The farmer and his home surroundings are improved to such an extent that his social status is very acceptable to the most of us.

Is it necessary to establish new institutions in pushing this development or shall the secondary agricultural work be most effective when our entire extension system of education is sending its current of knowledge to the people over lines of contact already installed?

The future position which agriculture is to occupy in our secondary educational system is as yet an unsolved problem. Of one thing we are quite sure, that education must yield to the growing demand that agriculture have a place in our secondary schools and if the high schools will insist upon dwarfing the importance of agricultural instruction and of holding to the attitude of *toleration* rather than to that of *sympathetic aid* and *aggression*, then will they surely fail because of their narrowness, and the special agricultural school will sweep over the country. The struggle is on. Will the high school rise to its opportunity? We believe it will.



## VIA. IN PUBLIC HIGH SCHOOLS SHOULD AGRICULTURE BE TAUGHT AS AGRICULTURE OR AS APPLIED SCIENCE?

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In arriving at an answer to the question as to whether agriculture should be taught as agriculture or as applied science two assumptions are imposed: first, that agriculture is teachable as such, and second, that it is also teachable as something else, i.e., as applied science. One's mental equipment and mental attitude toward both the subject and what it means to teach will influence his answer. These points of view are suggested as a basis for the discussion which follows. What is the probable attitude of the practical farmer without scientific training? What is the probable attitude of one trained in science without practical experience in the various arts of agriculture? What is the attitude of the learner who has had some practical experience in farming? What is the attitude of the learner who has had no experience in farm arts? The teaching of agriculture must mean something different to each of these persons.

If the practical farmer were asked to give his idea of what it means to teach agriculture to a class of high-school boys, his answer would probably be reducible to some such formula as this: "Teach the boys how to do the various things needful for carrying on the farm operations." If the farm is devoted to crop raising, these operations would be largely confined to the arts of tillage, planting, harvesting, storage, and marketing. It would also include, more or less incidentally, the care and handling of horses and the use of tools and machinery. If, however, the farm were primarily devoted to stock raising, the relative importance of the crop-raising arts and animal husbandry would be reversed. The emphasis would tend to be placed on the animal aspect, while raising crops would become incidental. In either case the farmer-teacher would place the greater emphasis upon the art of doing things. This

seems inevitable from the nature of his training. The more skilful he is himself, the more prominent would become the art aspect of his instruction. The student under such influence would easily become a trained operative in agriculture, rather than an educated agriculturist. The instruction would be direct, immediate, practical, and narrow, because of the circumscribed outlook and limited insight of the teacher.

If the same question, "What does it mean to teach agriculture in a high school?" were put to a man trained in science, the answer would in all probability tend toward the formula, "You cannot teach the application of science until you have taught the science." This attitude would postpone the study of agriculture till after a study of the sciences which are to find their application in agriculture. A foundation knowledge of scientific methods and of scientific principles would be insisted upon as a prerequisite to their application in the art of agriculture. The reason for doing things would be dominant. The laws governing the activities of Nature in the production of plants and animals would be magnified. The art of plant culture and of animal husbandry would be correspondingly minimized. The attitudes of the "farmer-teacher" and the "science-teacher" are antithetical. The "science-teacher" would become so absorbed in one or two sciences that agriculture would be touched incidentally, or as a student recently expressed it, "accidentally." The "farmer-teacher" would become so intent upon agriculture that he would lose sight of the underlying sciences. He could not see botany for so many vegetables, nor zoölogy for so many animals, nor chemistry for so much manure, nor physics for so much tillage. The "science-teacher" would be as constantly losing sight of the apple in pomology, the horse or cow in zoölogy, the fertilizer in chemistry, and soil drainage in physics. In very truth, the teacher of agriculture must be a man of perfect balance.

What of the student? One type of student brings to the study of agriculture a body of knowledge which we call practical experience. If the experience (practice) has been good the knowledge is valuable. If the practice has been bad the knowledge gained by it is injurious, because of the tendency of acquired habits to stay fixed, whether they are habits of thinking or habits of action. A person in this state of mind will approach the study of agriculture prejudiced with the idea that the way things have been done by himself in the past is a justification for doing them the same way in the future. The superficially

reasoned-out modes of operating the arts of agriculture from the narrow range of individual experience makes the mind inert. Opposed to this mental inertia is the scientifically reasoned-out justification for doing the thing at all. The practical craftsman justifies the art by the mode of operating it; the scientific operator, by the reason for the operation. This is the point at which theory and practice often come into conflict. And there is nothing which damages a theory so much as its inability to work.

This conflict between theory and practice is inevitable. It has two reasons for occasionally happening. One lies in the domain of each of the parties to this age-long controversy. Theory, on the one hand, is only a way of expressing in general terms one's idea about a group of facts or the reasons for a course of action. The idea, or conclusion, or generalization may be based upon too small a number of factors, or by giving undue weight to some factors and underestimating or ignoring others. On the other hand, practice is only the customary way of doing things. The method finds its chief justification in tradition. Its chances for being in error lie in the fact that the inception and continuance of a given practice often rest upon too narrow a range of experience. The more completely one justifies his practice by his individual experience alone, the less plastic is his mind in the presence of a disturbing theory, however well fortified the theory may be by scientific experimentation.

What of the person who comes to the study of agriculture unskilled in its arts and ignorant of the fact that, as a mode of life, it is in any way related to science? This state of mind is the virgin soil for exploitation by both the misnamed practical man and the much abused theoretical man. Here each congratulates himself that he has before him a clean slate on which he may write at will. One rejoices that here is a student innocent of the habits of a faulty practice; the other, that the student is unprejudiced by false theories.

The ideas in the foregoing suggestions seem to stand at the threshold of the discussion of the question as to whether agriculture should be taught as agriculture or as applied science. Taking the question at its face value as thus stated, the answer is easy. In fact, it is too easy for safety. A brief argument may be formulated in favor of teaching it as "applied science" as follows: "Agriculture is applied science, therefore it can only be taught as applied science." This mode of answering the

question is quite satisfactory to some minds. It fails short of being entirely satisfactory because it ignores two or three important considerations. These may be stated in the form of questions.

1. What are the motives for studying a science?
2. What are the motives for studying agriculture?
3. When is a science applied?

One other consideration must be taken into account whether one is conscious of it or not. That is, what function is the course of instruction supposed to perform for the pupil of high-school age?

First, as to the motives for the study of science. In these days science has reached so great a development in so many directions that it has in some of its phases become universal as a school study. Science does not get so much of the school time devoted to it as the languages do, but some aspect of it is taught in practically all schools. Its universality as a school subject seems to justify its claim for having educational values. Science must have a high degree of mental sustenance to have become so universal. What these mental values are need not be dwelt on here. It is enough to say that many pursue science not for the sake of any use they expect to put it to, but for the pleasure its possession gives them in their leisure and the insight it gives into the mysteries of the world of Nature about them in their daily work. In other words, science as a study has justified itself as a cultural and humanizing study of the highest order.

Correlative with this, science has its utilitarian aspect. Whatever may be claimed for it in giving the mind freedom from prejudice, and adding to one's joy of living, science will always remain a most practical study. Its practicalness lies in its application to things that are seldom thought of as being scientific in themselves. This is especially true of the theme in hand, namely, agriculture. Agriculture, which has been carried on so many generations by men untrained in science, is the latest of the great human vocations to benefit by the message science has to offer for man's welfare. The fact that the arts of tillage and husbandry are so simple as arts discourages the attainment of a high degree of skill. The application of the principles of science or of scientific method to an occupation so wanting in skill has always met resistance. This resistance seems to grow out of the fact that the workman unschooled in the science of his craft regards his work as a thing by itself and especially as a thing apart from science.

Science in the broad sense of the term has a greater message for agriculture than for any other single human industry. To put it a little more accurately, the various sciences have a multitude of messages for the numerous arts that are included under the word agriculture. There is hardly a branch of learning included in the term science which does not stand ready with a helpful message for the advancement of agriculture. Physics in its application to tillage, chemistry in the analysis of fertilizers and animal nutrition, biology in the exemplification of the laws of life, meteorology in its seasonal control of the year's succession of activities, and geology with its productive elements, the basis of soil-study as well as of plant production, all contribute to the upbuilding of a scientific agriculture.

To weigh these different bodies of scientific knowledge and to give to each its proportionate share in the advancement of agriculture requires a mind of unusual grasp.

To contend that even the simplest elements of each of these sciences should be studied with a view to their use as applied sciences afterward would preclude the possibility of the study of agriculture in any form during the high-school period. When viewed from the standpoint of the sciences involved in it, the teaching as well as the study of agriculture becomes the most complicated educational problem the public schools have ever undertaken to master.

Instruction in agriculture has two distinct phases. One involves the process of learning the art of doing things connected with the field, the garden, the barn and feed yard, the orchard, the meadow, the wood lot, and the toolhouse. The other phase of agricultural instruction relates to the sciences on which these several arts depend for their explanation. Art and science instead of being opposed, are more intimately connected in the study of agriculture than in any other subject now offered in the schools, unless it is language. The vitality of language as a school study through the centuries is due to the intimate blending of the two arts of speaking and writing with the two sciences of grammar and logic. When we once become conscious of this indissoluble tie between the arts of communication and the sciences of human thinking, no school reform will ever lay violent hands on grammar and logic.

Agriculture is much more complex. Instead of embracing only two, it has a large group of arts. Instead of being explained by only two sciences, agriculture lays tribute on nearly every science known to man.

And when the teacher of either agriculture or of science once becomes conscious of this ganglionic tie between the agricultural arts and all of the sciences he will teach science less "for the sake of science" and more "for the service of man." Now, the knowledge embraced within the domain of a given science has, in most cases, been so well systematized that a serial group of lessons may be arranged for orderly school work with very little trouble. One lesson follows another in causal or sequential order because of the relation of their subject-matter one to another. Progress is in the nature of motion in a straight line. Lessons in agriculture have little if any logical order so far as being dependent upon each other, in a causal way. It is on this account that lessons in plant culture may begin with the fruit, the roots, or the stem as is convenient. In case the fruit is taken as a starting-point the succeeding lessons, instead of running in a straight line like a series of causes and effects, or a group of closely related sequences, represent a group of sciences with the first lesson as a center of radiations. These sciences may have fairly well-defined lines separating them from each other, but the lesson on the fruit of a given plant is inseparable from either of them. It is an undivided part of each science. And the series of lessons on the fruit must go from science to science until the circuit is complete. Take an example:

The meagerest sort of a lesson on the apple would include such features as variety, form, color, size, and uses. But its variety is identical with so much of its botany; its form is involved in geometric mathematics; its color is a matter of physics, chemistry, and meteorology, and possibly of geology; its size is due in part to variety, which is botanical, in part to climate, which is meteorology, in part to altitude and latitude, which are geographical, in part to nourishment, which is physiologico-botanical; its uses first as food, second as an article of commerce, third as a source of power in the form of alcohol, identify the study of the apple with the sciences of domestic economy, economics, and political economy. From this it is plain that a lesson on the apple merely as a fruit, instead of being the beginning of a series of lessons following one after another in a dependent order, becomes the center for progress in the form of a spiral rather than of a straight line. The apple is the converging point for seven or eight well-defined sciences. And the study of the apple that confines itself to the most obvious features of it, i.e., variety, form, color, size, and uses, must cross-section each of the seven

or eight sciences. Each science in turn gives its message toward the explanation of the apple.

The apple is serving a double rôle in this illustration—it is both a center for the convergence of a group of sciences and at the same time a center of radiation into a surrounding group of sciences. And the question may now be put, as to whether the apple should be studied as a means of introducing a student to the sciences, or whether the sciences should be studied as a means of understanding the apple.

The field from which similar illustrations might be drawn is as wide as the whole field of agriculture. Examples may be found in animal life, in the garden, the forest, and in the field. Whatever object is taken, whether an apple, a potato, an ear of corn, a hen, a horse, or a forest nut, the same group of sciences must be looked to for principles of explanation and for guides to conduct in dealing with the object. These objects of study are tied up with human interest. This is what makes them agricultural. Science for science's sake is unrelated to human interests. Botany as such never touches man. Zoölogy as such only touches man as an animal, and as a science is unrelated to human interests until it deals with horses and hogs and hens, not because they are animals but because they are man-nurtured animals. Botany allies itself with human interests only when it deals with plants as they are related to human welfare. The human-interest aspect of the physical and biological sciences is what makes certain substances like soil, water, and air, and a few plants and animals, agricultural. To teach these things apart from their human interest makes them simply objects of science and non-agricultural. It would, therefore, appear that from the standpoint of the close relation of the farm arts to the sciences, or from the standpoint of human interest, agriculture should be taught as agriculture and not as an applied science.



VIB. IN THE PUBLIC HIGH SCHOOLS AGRICULTURE  
SHOULD BE TAUGHT AS AGRICULTURE,  
NOT AS APPLIED SCIENCE

G. F. WARREN

Professor of Farm Management, Cornell University, Ithaca, N.Y.

A very large part of our agricultural instruction may be combined with other sciences and will serve to enrich these studies. I believe agricultural illustrations will almost revolutionize the teaching of science which is in danger of becoming too academic. So soon as we have science well systematized with definite sets of laboratory exercises, we feel are fixed for all time, we have lost one of the most useful features about science, that is, that it studies the earth and the civilization that surrounds us—conditions that are ever changing.

While teaching capillarity in physics, the soil offers a most vivid illustration. While teaching friction, such questions as the draft of riding and walking plows may be cited. A well-constructed riding plow will carry a man and draw easier than will a walking plow because a third of the draft of the walking plow is due to friction on the bottom of the furrow, whereas with the riding plow, the friction is on the axle and the axle is greased. Another illustration might be of the reason why placing the double-tree below the tongue will enable a team to pull a heavier load than if the double-tree is high, as in the case of carriages. The first thing that gives way when a horse fails under a load is the feet. The horse cannot stick to the ground, but if he is low a part of the load will pull down on the back, making the load "heavier" and the friction greater, and will enable the horse to pull more. This is also one of the reasons why a draft horse should be

While teaching bookkeeping in rural high schools, farm accounts rather than operations involving some large city business should be used for at least a part of the illustrative material. Farm accounts are simpler and less complicated than are the accounts for city business. They would, therefore, better meet the objection that some people have to bookkeeping—that it does not require sufficient mental application.



system to be followed, are of  
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culture? A mistake in one of  
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*Hamlet* with Hamlet left out.

should not think of expecting the teachers of botany, zoölogy, chemistry, and physics to train physicians. No matter how many medical illustrations these teachers may use, we must always have separate departments and separate instruction that will correlate all these sciences into a single unit—the science of medicine. Similarly we must have all the sciences correlated into the unit—agriculture.

Let us take a single illustration. How would the teaching of crop rotation proceed if there were no separate subject of agriculture? Crops are rotated:

1. To control weeds.
2. To control insects.
3. To control fungi.
4. To keep up the humus supply.
5. To secure the benefits of growing grasses and legumes on each field.
6. For convenience in working.
7. For control of toxic substances.

Possibly the botany teacher might mention weeds, fungi, legumes, and grasses in this connection, and might even discuss toxic substances. The teacher of zoölogy might mention crop rotation as a means of controlling insects. Certainly no science teacher would consider the convenience in working that comes from growing crops in a certain order, yet this is the chief reason that leads farmers to rotate crops. But if all these points were mentioned at various times and in this disconnected way, it would not teach crop rotation.

More important than the reasons for crop rotation is the planning of cropping systems adapted to particular farms. This does not belong in any of the sciences except the science of agriculture.

Perhaps no error is more prevalent than the idea that agriculture is nothing but the application of other sciences. Even some agricultural colleges still fail to grasp the idea that agriculture is itself a science. Probably half of the best teaching of agriculture is not the application of any science except the science of agriculture. The laying of a tile drain is not physics. The training of a colt is not zoölogy. The grading and packing of apples is not botany.

The selection of a farm is one of the most important decisions in the life of a farmer; such a selection should be based on scientific principles. The decision as to the best type of farming for the region, the stocking

and equipping of the place, the cropping system to be followed, are of the utmost importance to the farmer. But to what science do these things belong except the science of agriculture? A mistake in one of these cannot be overcome by any knowledge of life histories of insects or ideas on how plants grow.

Any school course that pretends to prepare for farming must teach the usual sciences and ought to include in these as many agricultural illustrations as possible, but to try to give agricultural training without agriculture as a separate subject is like *Hamlet* with Hamlet left out.

# CONSTITUTION OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

(Revision Adopted in Chicago, February, 1909)

## ARTICLE I

*Name.*—The name of this Society shall be “National Society for the Study of Education.”

## ARTICLE II

*Object.*—Its purposes are to carry on the investigation and to promote the discussion of educational problems.

## ARTICLE III

*Membership.*—SECTION 1. There shall be three classes of members—active, associate, and honorary.

SEC. 2. Any person who is desirous of promoting the purposes of this Society is eligible to active membership and shall become a member on approval of the Executive Committee.

SEC. 3. Active members shall be entitled to hold office, to vote, and to participate in discussion.

SEC. 4. Associate members shall receive the publications of the Society, and may attend its meetings, but shall not be entitled to hold office, or to vote, or to take part in discussion.

SEC. 5. Honorary members shall be entitled to all the privileges of active members, with the exception of voting and holding office, and shall be exempt from the payment of dues.

A person may be elected to honorary membership by vote of the Society on nomination by the Executive Committee.

SEC. 6. The names of the active and honorary members shall be printed in the *Yearbook*.

SEC. 7. The annual dues for active members shall be \$2.00 and for associate members \$1.00.

## ARTICLE IV

*Officers and Committees.*—SECTION 1. The officers of this Society shall be a president, a vice-president, a secretary-treasurer, an Executive Committee, and a Board of Trustees.

SEC. 2. The Executive Committee shall consist of the president and four other members of the Society.

SEC. 3. The president, vice-president, and secretary-treasurer shall serve for a term of one year. The other members of the Executive Committee shall serve for four years, one to be elected by the Society each year.

SEC. 4. The Executive Committee shall have general charge of the work of the Society, shall appoint the secretary-treasurer, and may, at its discretion, appoint an editor of the *Yearbook*.

SEC. 5. A Board of Trustees consisting of three members shall be elected by the Society for a term of three years, one to be elected each year.

The Board of Trustees shall be the custodian of the property of the Society, shall have power to make contracts, and shall audit all accounts of the Society, and make an annual financial report.

SEC. 6. The method of electing officers shall be determined by the Society.

## ARTICLE V

*Publications.*—The Society shall publish *The Yearbook of the National Society for the Study of Education* and such supplements as the Executive Committee may provide for.

## ARTICLE VI

*Meetings.*—The Society shall hold its annual meetings at the time and place of the Department of Superintendence of the National Education Association. Other meetings may be held when authorized by the Society or by the Executive Committee.

## ARTICLE VII

*Amendments.*—This constitution may be amended at any annual meeting by a vote of two-thirds of voting members present.

# MINUTES OF THE MOBILE MEETING OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

(Held in the Elks' Club, Mobile, Ala.)

DISCUSSION OF YEARBOOKS, WEDNESDAY, FEBRUARY 22, 7:30 P.M.

BUSINESS MEETING, FRIDAY, FEBRUARY 24, 4:30 P.M.

*President Carroll in the Chair*

*S. Chester Parker, Secretary*

The Wednesday evening meeting was devoted to a discussion of the *Yearbooks*, Part I, "The City School as a Community Center," Part II, "The Rural School as a Community Center." The following persons participated in the discussion: Mr. Lee F. Hanmer, of the Russell Sage Foundation; Professor B. M. Davis, Miami University, Oxford, Ohio; Superintendent Davidson, of Omaha, Neb.; Professor Baldwin, of the Hyannis, Mass., Normal School; Superintendent Cooke, of Baltimore County, Md.; Professor Strayer, of Teachers College, New York City; Professor Sutton, of the University of Texas; Superintendent Hamilton, of Allegheny Co., Pa.; Professor Forbes, of the University of Rochester.

Most of the speakers held definitely to the subject under consideration, describing practical examples of the work with which they were acquainted. Professor Forbes, on the invitation of President Carroll, delivered a carefully prepared, twenty-minute summary of the practical social significance of the work that is being done to make the schools real community centers.

The President announced the following Nominating Committee: Professor W. S. Sutton, of the University of Texas, Professor Manfred J. Holmes, of Normal, Ill., Superintendent J. H. Van Sickle, of Baltimore, and Superintendent A. S. Cooke, of Baltimore Co., Md.

Friday, February 24, 4:30 P.M. was chosen for the business meeting. The following business was transacted at the Friday meeting:

The minutes of the Indianapolis meeting were read and approved.

The report of the nominating committee was received and adopted, the following officers being elected:

*President*, Professor W. C. Bagley, of the University of Illinois.

*Members of the Executive Committee*: Superintendent W. H. Elson, Cleveland, Ohio, for four years; Professor G. D. Strayer, of Teachers College, to fill remaining two years of the unexpired term of Professor Suzzallo who had resigned on account of stress of administrative work.

*Trustee*, R. P. Halleck, Louisville, Ky.

The report of the Secretary-Treasurer was received, ordered to be printed in the next yearbook. It was ordered that the accounts of the Secretary be audited by the Trustees.

Professor C. H. Judd, chairman of the Board of Trustees, suggested the advisability of trying to arrange a subscription combination with the *Teachers College Record* and the *Elementary School Teacher*, whereby the publications of the Society would be given wider circulation and the members of the Society receive greater value for their dues. By motion, the officers of the Society were authorized to canvass the possibilities of such a combination and submit it to the active members of the Society by mail for referendum vote.

Following the suggestion of President Carroll, the meeting voted in favor of the following topics for the 1912 yearbooks: Part I, "Industrial Education in City Schools;" Part II, "Agricultural Education;" the yearbooks to consist largely of description of typical experiments along these lines by specialists who are actually engaged in the work.

Meeting adjourned.

CLARENCE F. CARROLL, *President*  
S. CHESTER PARKER, *Secretary*

## REPORT OF SECRETARY TO EXECUTIVE COMMITTEE AND TRUSTEES AT THE MOBILE MEETING

Number of Members December, 1910:	Active.....	141
	Associate.....	97
	Total.....	238

### FINANCIAL CONDITION OF THE SOCIETY

*Resources.*—Twenty-seven active members and 21 associates were delinquent for 1910 on December 31. This leaves a probable paying membership as indicated in the following table which includes income from publications sold by the University Press:

	Number	Total
Active members paying \$2.00.....	114	\$228.00
Associate members paying \$1.00.....	76	76.00
		<hr/>
Income from members.....		\$304.00
From University Press, June, 1910.....	\$504.66	
From University Press, January, 1911...	259.17	
	<hr/>	763.83
		<hr/>
Estimated total annual income ....		\$1,067.83

The income from the sale of publications is approximately two and one-half times that from members.

### *Estimated Average Annual Expenditures*

Manufacturing and distributing two Yearbooks....	\$600.00
Editorial expense for same.....	60.00
Secretary's salary.....	100.00
Stationery, printed notices, etc.....	20.00
Postage.....	20.00
Typewriting.....	10.00
	<hr/>
	\$810.00

This estimate may be a little too low as it indicates a probable annual profit of over \$200.00.



*Analysis of Income from Publications*

The largest items in the sale of publications by the University Press during 1910 were the following:

IX-1.	Wood, <i>Health in Education</i> .....	\$183.15
VIII-1.	Henderson, <i>Sex in Education</i> .....	61.20
VIII-2.	Henderson, <i>Sex in Education</i> .....	63.90
	Dewey, <i>Ethical Principles</i> .....	107.05
	Dewey, <i>Interest</i> .....	86.10
	Bound Volume, National Society.....	24.00
	Bound Volume, Herbart Society.....	24.00
VII-1.	Lowry, <i>Professional Improvement of Teachers</i> .....	21.15
V-2.	Cubberly, <i>Certification of Teachers</i> .....	29.16
VI-2.	<i>Kindergarten and Elementary Education</i> ...	23.04
VII-2.	<i>Kindergarten and Elementary Education</i> ...	19.35
Total.....		<u>\$642.10</u>

These sales constitute 84 per cent of the total sales.

The following items are especially noteworthy:

1. Dewey's two pamphlets realize as much as 63 per cent of the membership dues.

2. Henderson's books have returned in sales 80 per cent of their original cost (cost about \$560.00; sales 1909-10, \$447.00).

3. Wood's book has realized 40 per cent of its cost in the first year of sales (a very expensive book; manufacturing cost, \$300.00; editorial expense, \$135.00; total, \$435.00).

Respectfully submitted,

S. CHESTER PARKER, *Secretary*

# FINANCIAL REPORT OF THE SECRETARY-TREASURER

## JANUARY 1, 1911, TO DECEMBER 31, 1911

### RECEIPTS

Balance on hand January 1, 1911.....		\$733.69
Sales by the University Press—		
June to December, 1910.....	\$259.17	
January to June, 1911.....	387.46	
	<hr/>	\$646.63
Interest on savings' bank account.....		9.56
Dues from members (current and delinquent)—		
Active.....	\$333.40	
Associate.....	94.10	
	<hr/>	\$427.50
		<hr/>
Total income for the year.....		\$1,083.69
Total including initial balance.....		\$1,817.38

### EXPENDITURES FOR 1911

#### *Usual Expenses*

<i>Publishing and distributing two Yearbooks—</i>		
Printing <i>Tenth Yearbook</i> , Pt. I (City Social Centers).....	\$217.13	
Printing <i>Tenth Yearbook</i> , Pt. II (Rural Social Centers)....	215.99	
Editorial expense, <i>Tenth Yearbook</i> , Pt. II (Davis) .....	15.95	
Mailing above Yearbooks.....	32.00	
Reprints for contributors.....	35.20	
	<hr/>	
Total cost of usual Yearbooks.....		\$516.27

#### *Secretary's office—*

Secretary's salary.....	\$100.00	
Mobile traveling express.....	46.00	
Typewriting.....	\$31.39	
Stationery.....	14.08	
Stamps.....	20.50	
Express.....	1.30	
Telegrams.....	5.25	
Exchange.....	1.85	
	<hr/>	

    Total running expenses..... \$74.37

    Total for Secretary's office..... \$220.37

#### *Other expenses—*

Mobile stenography for President Carroll.....	\$2.24	
Refunds of excess paid on dues.....	2.00	
	<hr/>	

    Total other expenses..... \$4.24

    Total usual annual expenses..... \$740.88

*Unusual Expenses*

Printing a third Yearbook ( <i>Ninth Yearbook</i> , Pt. II, Wood, <i>Nurse in Education</i> , should have been issued in 1910)...	\$176.90	
Mailing same.....	15.23	
Manufacturing 100 bound volumes (done every five years)...	45.00	
Reprinting <i>Eighth Yearbook</i> (Henderson, <i>Sex</i> ).....	114.80	
Reprinting <i>Ninth Yearbook</i> (Wood, <i>Health</i> , and <i>Nurse in Education</i> ).....	133.00	
Total unusual expenses.....		<u>\$484.93</u>

SUMMARY

Usual annual expenses.....	\$740.88	
Unusual expenses.....	<u>484.93</u>	
Total expenditures, 1911.....		\$1,225.81
Balance on hand December 31, 1911.....		<u>591.57</u>
		\$1,817.38

S. CHESTER PARKER, *Secretary-Treasurer*.

## LIST OF ACTIVE AND HONORARY MEMBERS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

### ACTIVE MEMBERS

Axline, Howard E., Principal Hicks School, Cleveland, Ohio  
Bagley, William C., University of Illinois, Urbana, Ill.  
Baldwin, Bird T., State University, Austin, Tex.  
Beegs, A. H., Whittier School, Denver, Colo.  
Benedict, Ezra W., Walden, Orange Co., N.Y.  
Blaine, Mrs. Anita McCormick, 344 East Erie St., Chicago, Ill.  
Bolton, Frederick E., 1019 College St., Iowa City, Ia.  
Boyer, Charles, Superintendent of Schools, Atlantic City, N.J.  
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Briggs, Thomas H., Jr., 523 West 124th St., New York City  
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Brown, John F., Teachers College, New York City  
Brown, J. Stanley, Superintendent of Township High School, Joliet, Ill.  
Brumbaugh, Martin G., Superintendent of Schools, Philadelphia, Pa.  
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Burnham, W. H., Clark University, Worcester, Mass.  
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Condon, Randall J., Superintendent of Schools, Providence, R.I.  
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Cook, John W., President N. I. S. N. S., De Kalb, Ill.  
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- Ellis, A. Caswell, University of Texas, Austin, Tex.
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- Halleck, Reuben Post, Principal Boys' High School, Louisville, Ky.
- Hamilton, Cora M., State Normal School, Macomb, Ill.
- Hanus, Paul H., Harvard University, Cambridge, Mass.
- Harris, Ada Van Stone, Assistant Superintendent of Schools, Richmond, Va.
- Harwood, Samuel E., State Normal University, Carbondale, Ill.
- Hatch, W. H., Superintendent of Schools, Oak Park, Ill.
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Thurber, Charles H., Editor, Ginn & Co., Boston, Mass.  
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Updegraff, Harlan, Bureau of Education, Washington, D.C.  
Vanderwalker, Nina C., State Normal School, Milwaukee, Wis.  
Van Liew, C. C., President of State Normal School, Chico, Cal.  
Van Sickle, Jas. H., Superintendent of Schools, Springfield, Mass.  
Waldo, Dwight B., Western State Normal School, Kalamazoo, Mich.  
Walker, Elmer W., Superintendent State School for the Deaf, Delavan, Wis.  
Willison, Archibald C., Superintendent of Schools, Allegany Co., Cumberland, Md.  
Work, Cree T., President of College of Industrial Arts, Denton, Tex.  
Wright, Robert H., Teachers Training School, Greenville, N.C.  
Youker, Henry S., 491 New York Ave., Oshkosh, Wis.

## HONORARY MEMBER

Dewey, John, Columbia University, New York City









# THE TWELFTH YEARBOOK

OF THE

## NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

### PART I

#### THE SUPERVISION OF CITY SCHOOLS

BY  
FRANKLIN BOBBITT, PH.D.  
*Instructor in Educational Administration  
in the University of Chicago*

Supplemented by JOHN W. HALL  
Bibliography by J. D. WOLCOTT

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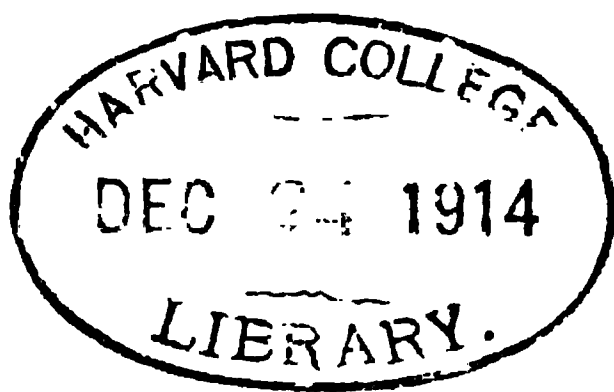
*Edited by the Secretary*

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THIS YEARBOOK WILL BE DISCUSSED AT THE PHILADELPHIA MEETING OF THE  
NATIONAL SOCIETY, MONDAY, FEBRUARY 24, 1913, 8:00 P. M.

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JAMES H. VAN SICKLE  
Superintendent of Schools, Springfield, Mass.

### *Vice-President*

EDWARD F. BUCHNER  
Johns Hopkins University, Baltimore, Md.

### *Secretary-Treasurer*

S. CHESTER PARKER  
University of Chicago, Chicago, Ill.

### *Executive Committee*

(The year indicates date of expiration of term)

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# **SOME GENERAL PRINCIPLES OF MANAGEMENT APPLIED TO THE PROBLEMS OF CITY-SCHOOL SYSTEMS**

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## **I. INTRODUCTION**

At a time when so much discussion is being given to the possibilities of "scientific management" in the world of material production, it seems desirable that the principles of this more effective form of management be examined in order to ascertain the possibility of applying them to the problems of educational management and supervision. This paper attempts to suggest what some of the principles would probably mean when applied to the labors of our field.

Management, direction, and supervision are functions of all co-operative labor. While men act singly, direction can find no place; but when men co-operate for common ends, one must direct the diverse labors of the group in order to secure unity and effectiveness. The tasks of direction arose with the rise of human organization. Directive labors differ naturally from group to group in their specific details; but whether the organization be for commerce or for manufacture, philanthropy or education, transportation or government, it is coming to appear that the fundamental tasks of management, direction, and supervision are always about the same.

In any organization, the directive and supervisory members must clearly define the ends toward which the organization strives. They must co-ordinate the labors of all so as to attain those ends. They must find the best methods of work, and they must enforce the use of these methods on the part of the workers. They must determine the qualifications necessary for the workers and see that each rises to the standard qualifications, if it is possible; and when impossible, see that he is separated from the organization. This requires direct or indirect responsibility for the preliminary training of the workers before service, and for keeping them up to standard qualifications during service. Directors and supervisors must keep the workers supplied with

detailed instructions as to the work to be done, the standards to be reached, the methods to be employed, and the materials and appliances to be used. They must supply the workers with the necessary materials and appliances. They must place incentives before the worker in order to stimulate desirable effort. Whatever the nature or purpose of the organization, if it is an effective one, these are always the directive and supervisory tasks.

It appears possible therefore to find inherent in the nature of effective, fully developed human organization, of whatever sort, certain general principles of management and supervision that have universal applicability. These general principles have been recognized by different social organizations with very unequal degrees of clearness, and their application to the problems in hand has been made also with varying degrees of completeness. The principles appear to be most clearly conceived and to have been most fully and completely worked out by certain portions of the industrial and business world. Certain railroads and manufacturing corporations have gone farther in this direction than government, or philanthropy, or education, or any of the less materialistic institutions. These latter institutions, are, however, in fact, at present taking over the lessons to be taught by the industrial world; and they are busily making application of proven principles of good management to the special problems of their own field.

Educational workers can, therefore, perhaps see the nature of some of these principles of supervision rather more clearly from observing their application in other fields of human labor, partly because they have been more completely developed and applied in those fields, and partly because they can be viewed in a more objective and impersonal manner. In undertaking our discussion of certain of these principles, it seems well, therefore, to state and illustrate each of them in their most general form as they apply to any organization; then to show in detail how each of them has been worked out in the field of education; or, as it is unfortunately too often the case with us, how it is being worked out and the probable lines along which it is yet to be further developed.

Although we are in our field rather backward as compared with portions of the world of affairs in the recognition and development of some of these principles, together with their corollaries; yet, as a matter of fact, all of them are recognized in our work in greater or lesser degree;

and without exception, each is at present in process of rapid development. We can excuse our relative backwardness on the ground that our educational systems are institutions of very recent growth. Present-day forms of organization in the business world began in the Middle Ages. Our large and complicated public-school systems, however, have been mostly developed thus far, in matters of organization and supervision, within the memories of men now living. We are doing pioneer work as compared with the older institutions; we think we have a right, therefore, to expect some of these older institutions to show us the elements of organization that make for strength, and the elements of supervision that make for effectiveness.

In making application of these principles to the educational field, we shall find ourselves at times confronted with tasks for which our profession is at present almost wholly unprepared. Much of our present educational labor is on so low and empirical a level that a great many preliminary steps will have to be taken before we can raise our methods to the place demanded by the higher and more refined forms of empiricism; or yet, to the still higher plane of scientific control. Recognition of the principles, however, is necessary to any constructive program. It is for this reason that we have not hesitated in our discussion to make deductive application of principles or of their corollaries which cannot actually be applied in our supervisory labors until a number of preliminary and prerequisite tasks have been accomplished. While some of the matters discussed may therefore be impracticable for actual supervision at present, or in the immediate future, they are presented with a belief that they are highly practical for the investigations that lie just ahead of us, on the basis of which we can bring about such forms of scientific supervision and control in the educational world as already exist within certain other institutions.

It is not, in fact, possible at present to write a satisfactory practical handbook of school management or school supervision. So rapid have been recent changes in educational thought, that books on either of these topics of a type that was considered altogether permissible ten years or even so recently as five years ago, can no longer be written; and the facts are not yet at hand in sufficient quantity on the basis of which to write a practical handbook of school management of a type that will satisfy the current demands of progressive educational leaders. Any paper on the topic during our present transitional period can do little

more than suggest the constructive program on the basis of which the facts may be accumulated which will permit the writing of such a practical handbook some years hence.

In making suggestions for a constructive, forward-looking program, it is necessary to assume that we are at present in a stage of incomplete development. While all, or at least most, of the elements of educational progress probably look squarely in the right direction, yet we have to admit that in the case of some of them the amount of progress yet made is not considerable. When we have occasion at times to mention this incompleteness of development as the basis on which further building is to be done, it is not intended as uncharitable or unsympathetic criticism of present-day conditions. It is only to point out incompleteness. To say of a new building that is in process of construction that only the foundation has been laid is not a criticism of the building. It is only to point out the stage of construction in which it happens for the moment to be.

Such a building is to be judged not from the visible portion but from the architect's plans. Any particular educational system is likewise not to be judged from the incomplete beginnings actually visible, but by the architectural plans which have been drawn up by those in charge of the work, and which show the ends of which the present elements are but the beginning. In the building world, although the plans of the architect picture nothing that actually exists, yet these forward-looking plans constitute the practical and indispensable basis of all constructive work that is to be done.

In the building of a great educational structure, such as the one upon which we are now engaged, it appears that such forward-looking plans are equally practical and indispensable bases for work. They show something definite toward which to strive and on the basis of which all effort can be organized and co-ordinated. I am unable to conceive of any more practical labor that could be undertaken by the educational world than the definite drawing-up of systematic forward-looking plans on which our constructive labors might be based. The chief purpose of the following suggestions is to make clear this need. The work itself must be a co-operative task on a large scale.

## II. STANDARDS

*Principle I.—Definite qualitative and quantitative standards must be determined for the product.*

*Principle II.—Where the material that is acted upon by the labor processes passes through a number of progressive stages on its way from the raw material to the ultimate product, definite qualitative and quantitative standards must be determined for the product at each of these stages.*

The world of material production cannot so much as begin its work until it has definite plans and specifications as to the nature of the product that is to be turned out. To take a single instance from among countless familiar instances, a steel plant manufacturing rails for railroads must have, before it can begin its task, definite specifications as to the nature of the rails to be turned out. The rail, for example, must be thirty feet in length, and weigh eighty pounds to the yard. It must be seven and three-eighths inches in height, with a head two and one-half inches wide and one and one-half inches deep, a web thirty-five sixty-fourths of an inch in thickness and five inches deep, and a base five inches wide. The under surface of the base must be plane and the top surface of the head must be curved in the exact form shown by the drawings that accompany such specifications. Equally definite likewise are the specifications as to chemical quality, physical qualities, tempering, and the like.

With these definite standards as to the nature of the ultimate product before him, the superintendent of the plant is prepared to organize all of the forces at his command, to direct them, and to supervise them in such fashion as to secure just the product desired. He is able to select the most suitable machinery for the task and to make the necessary adjustments. He can tell instantly whether his machinery produces the desired product or not by measuring the actual product and comparing it with the standard product. He can know when machinery is to be altered or discarded, and another form substituted that will produce the standard product. He can know whether the workmen are doing the thing that is expected of them. Thus he can instantly detect good work and poor work among the men. He can know who needs help and who needs none. After trial he can know what one needs further training during service and what one would best be transferred to some other department or discharged. He has a basis for judging labor methods likewise. The product which results from the use of different methods

can be measured up against the standard, and determination can easily be made of the relative efficacy of different methods.

In the absence of such standards, the superintendent of the plant is helpless. If his instructions are merely general, they cover such a possible variety of products that he cannot know with certainty what to do. If given an order by some contracting railway in such general terms as, "Make us a supply of steel rails," he cannot know how long to make the rails, whether they shall be straight or curved, heavy or light, high or low, cast-iron or rolled steel, high carbon or low carbon, tempered hard or tempered soft, whether the edges shall be angular or rounded, whether the weight shall be uniform in the different portions, whether the cross-sections shall be T-shaped or a simple rectangle. He cannot know the quantity to make, nor the date upon which it is to be finished. Unless he sets up an arbitrary standard of his own, he cannot direct his men, since he has no ends toward which to direct them. He cannot know whether the men are doing good work or poor work since he has no standards to measure it by. The men may make rails; but unless limited by standards they will necessarily be of great variety, with most of them useless for practical service.

It is well to note also, for our purposes, that the standard qualifications of the product are not determined by the steel plant itself. The qualitative and quantitative specifications are determined by those that order the product, in this case, the railroads. The steelmills are but agents of the railroads for the performance of this specific function. Naturally the steel plant, since it is performing a specialized function for the transportation world, must not only be expert in its own special field, but must have a good general knowledge of the needs of the transportation world. Still, notwithstanding this expertness and this necessary width of information, it is the transportation world that determines all qualitative and quantitative standards for this particular product.

The principle stated at the head of this chapter is probably general and applies not only to the management of labors in the field of purely material production, but also to the control of co-operative labor in the field of biological and psychological production as well. Education is a shaping process as much as the manufacture of steel rails; the personality is to be shaped and fashioned into desirable forms. It is a shaping of more delicate matters, more immaterial things, certainly; yet a shaping

process none the less. It is also an enormously more complex process because of the great multitude of aspects of the personality that are to be shaped if the whole as finished is to stand in full and right proportions.

In the field of biological production, of which education constitutes one sort, the factor of growth enters in to complicate and in part to obscure the working of our principles. Within the seed planted by the farmer, for example, the standard product appears to be already infolded and predetermined without man's aid. All that is necessary apparently is to cultivate and to protect, leaving the rest to sun and rain and the growth-factor. The product arrives in due season whether there are standards for the product in the farmer's mind or not. As a matter of fact, however, the standard contained potentially within the undeveloped germ may be such that, in the case of corn, let us say, with the best cultivation the plant must be small with a single ear poorly filled out; or it may be a large vigorous stalk with two large full ears. It may produce ten bushels to the acre or it may produce a hundred. Of potatoes, the average yield in our country per acre over a series of years is ninety-six bushels. In 1907, the lowest average per acre was sixty-five bushels; and this, too, in the great agricultural state of Kansas. The highest average for any state was in the desert state of Wyoming, two hundred bushels to the acre. One man in Wyoming averaged for his farm over a thousand bushels to the acre. He had set his standard at one thousand and, having a standard to work toward, controlled conditions accordingly and reached it. It was not superior soil or climate; it was having a high standard on the basis of which to adjust and control all the necessary processes. In these illustrations it may be noticed that the growth-factor does a part of the work; but that this factor working alone can produce only an inferior product. Man must set up standards and arbitrarily control conditions even here in order that, with the aid of the growth process, he may secure the full possible product.

In education it is the same. The growth-process will of itself do much to unfold the various latent aspects of the personality. The teacher may simply assign lessons and hear lessons without any thought of possible quantitative standards, trusting that the enfolded possibilities will expand of themselves into proper strength and proportions. With this system of procedure it has been found that, among school systems all of which are above the average, one eighth-grade class will add at the rate of thirty-five combinations per minute, while another



eighth-grade class not dissimilarly located will add at an average rate of one hundred and five combinations per minute, or three times as fast. In two schools of similar grade, located within the same city, it is found that the sixth-grade pupils in one of them will write at a speed of 58 letters per minute with a quality of 53, Ayres's standard; while the sixth-grades classes in the other school write at an average speed of 115 letters per minute, with an average quality of 50. Quality being practically the same in the two schools, the quantitative standards reached by one school were twice as high as those reached by the other. If so great variety is to be found among pupils of supposedly equal ability in these so-called standard subjects in matters the most simple, fundamental, and mechanical, we may reasonably expect that in the higher, more complicated matters of science, history, and the humanities, the variations are much greater. Unfortunately we have no exact measurements in these fields. The facts given above, however, taken from the simpler fields, indicate that teaching without standards, trusting unduly to the growth-factor to determine the limits may result in a low or a high product. In education, apparently the growth-factor does a part of the work; but, unless standards for this growth are definitely set up, teachers and supervisors have nothing definite to aim at. And the actual average of performance is sure here as in agriculture to be but a per cent, sometimes a small per cent, of the possible performance.

So long as education is content merely to set the conditions of growth in a general way without reference to standards of growth, the educational supervisor, though relatively less helpless than the director of the steel plant, is yet in his turn relatively helpless. Having no standards he cannot know how long to continue developmental influences, whether one year or ten years. He cannot know how intensively to exercise these influences, nor the amount of daily or weekly time to give. He cannot know whether the relative emphases upon the development of different aspects of personality are properly proportioned. He cannot know except in vague general ways what methods are proving best or what teachers are doing the best work because of the lack of clearly defined standards with which to measure the results of the various methods employed by the various teachers.

Within the past decade we have come to see that it is possible to set up definite standards for the various educational products. The ability to add at a speed of 65 combinations per minute, with an accuracy



of 94 per cent is as definite a specification as can be set up for any aspect of the work of the steel plant. The desirable qualities of mathematical computation, in any of its forms, are speed and accuracy. It is possible in the case of every desirable mathematical operation to set up standards of speed and standards of accuracy. Obviously, these can be low or high. A standard of 30 combinations per minute with an accuracy of 75 per cent is very low as compared with a standard of 100 combinations per minute with an accuracy of 98 per cent. For certain classes of students, bookkeepers and accountants for example, the standards need to be high; for other classes of workers, musicians, for example, or bricklayers, the standards set may well remain fairly low and their energies be expended upon other matters more important for them.

Setting up standards of ultimate attainment can be of but little service unless we have at the same time the necessary scales and methods for measuring the educational product so as to determine with at least reasonable accuracy whether the product rises to standard. Ordinarily, the teacher, if asked whether his eighth-grade pupils could add at the rate of 65 combinations per minute with an accuracy of 94 per cent, could not answer the question; nor would he know how to go about finding out. He needs a measuring scale that will serve him in measuring his product as well as the scale of feet and inches serves in measuring the product of the steel plant. The labors of Mr. T. W. Stone and of Mr. S. A. Courtis have shown the possibility of determining practical usable measuring scales for arithmetical ability.

Mr. Courtis has tentatively determined measuring scales for ability in addition, subtraction, multiplication, division, the rate of motor activity in copying figures, the speed of solving simple one-step reasoning problems, the solution of abstract problems involving all of the four fundamental operations with integers, and the speed and accuracy of solving two-step problems involving reasoning—eight scales in all. Each scale is drawn up in such fashion that each unit of work is intended to be equal with each other unit of work in the scale, just as in a foot-ruler each inch is of the same length as each other inch. In the addition scales, for example, as shown below, each group of five combinations is of the same degree of difficulty and requires the same amount of work as each other group of five combinations. The same method of forming equal units is used in connection with the scales for subtraction,

for multiplication, for division, and for copying figures. In test No. 6, the simple reasoning speed test, each problem is intended to be of the same difficulty as each other one. In test No. 7, the ability to handle the four fundamental operations, the problems are grouped in such fashion that each unit is the equal of each other unit. The two problems in addition are the equal of the one problem No. 3 in multiplication. Units No. 7 and 8, it will be noticed, are to be found within the same multiplication problem which is one of double the difficulty of unit No. 3. Four of the eight measuring scales are here reproduced.<sup>1</sup>

Each scale is intended to measure the amount of work that can be performed within a given time and to measure its accuracy. For the simpler problems, the first six scales in fact, the standard allowance is one minute. For scale No. 7, it is 12 minutes; and for scale No. 8, it is 6 minutes. The pupils in a class are measured by starting all of them at the same instant at the beginning of the scale and stopping them at the end of the standard time allowance. The operations performed

ARITHMETIC

TEST NO. 1.					SPEED TEST—ADDITION				
1 6 9 0 4	1 7 9 3 2	1 3 6 0 3	8 9 7 8 2						
2 6 5 1 2	3 7 6 0 4	5 8 9 7 2	1 9 6 0 5						
— — — — —	— — — — —	— — — — —	— — — — —						
1 4 8 0 2	3 4 7 0 3	1 2 5 6 7	5 8 6 9 4						
6 7 9 5 7	1 6 9 8 5	4 9 8 0 2	1 3 5 0 3						
— — — — —	— — — — —	— — — — —	— — — — —						
2 9 7 4 5	1 3 8 2 3	4 8 9 5 3	1 8 6 0 5						
2 3 8 0 2	7 9 5 0 7	1 8 7 0 6	9 4 7 2 4						
— — — — —	— — — — —	— — — — —	— — — — —						
7 4 8 0 3	9 2 5 0 6	2 4 5 1 6	3 7 9 0 4						
1 9 6 0 4	1 8 7 4 3	1 8 9 0 2	3 4 8 6 5						
— — — — —	— — — — —	— — — — —	— — — — —						
4 8 5 0 7	5 9 6 7 5	1 6 7 0 2	6 9 8 1 2						
4 2 6 9 3	5 2 8 0 3	8 4 5 3 6	1 4 7 1 3						
— — — — —	— — — — —	— — — — —	— — — — —						
1 7 9 3 2	8 9 7 8 5	1 2 6 0 3	1 4 9 0 4						
3 7 6 0 4	1 9 6 0 2	6 7 9 7 2	6 7 5 1 2						
— — — — —	— — — — —	— — — — —	— — — — —						

<sup>1</sup> These scales are reproduced through the courtesy of Mr. S. A. Courtis. The complete series of scales can be found in his *Manual of Instructions*, published by S. A. Courtis, 82 Eliot St., Detroit, Michigan.



ARITHMETIC

TEST NO. 7. FUNDAMENTALS

In the blank space below, work as many of these examples as possible in the time allowed. Work them in order as numbered, writing each answer in the "answer" column before commencing a new example. Do no work on any other paper.

No.	Operation	Example	Answer	Right	
1	Addition....	a $30+735+123=$ ....(Write answer in this column) <del>23</del>			
		b $141+9021+102+2020=$ .....			
2	Subtraction	a $4387-165=$ .....			
		b $934762-821021=$ .....			
3	Multiplication.	$2102\times 321=$ .....			
4	Division.....	$318864\div 312=$ .....			
5	Addition....	$7024+342+4700+7005+$			
6		$2040+563=$ .....			
6	Subtraction...	$82311024-46973687=$ .....			
7	Multiplication.	$65048\times 546=$ .....			
8					
9	Division.....	$19055832\div 4=$ .....			
10	Division.....	$2753296\div 364=$ .....			
11					
12	Addition....	$55843+76868+66989+58393+$			
13		$79656+57866+38575+$			
14	Subtraction...	$75967=$ .....			
14	Subtraction...	$15542634-7865875=$ .....			
15	Multiplication.	$98756\times 768=$ .....			
16					
17	Division.....	$34834506\div 7=$ .....			
18	Division.....	$7636399\div 967=$ .....			
19					

ARITHMETIC

TEST No. 8. REASONING

In the blank space below, work as many of the following examples as possible in the time allowed. Work them in order as numbered, entering each answer in the "answer" column before commencing a new example. Do no work on any other paper.

1. The children in a certain school gave a Christmas party. One of the presents was a box of candy. In filling the boxes, one grade used 16 pounds of candy, another 17 pounds, a third 12 pounds, and a fourth 13 pounds. What did the candy cost at 26c. a pound?.....
2. A school in a certain city used 2516 pieces of chalk in 37 school days. Three new rooms were opened, each room holding 50 children, and the school was then found to use 84 sticks of chalk per day. How many more sticks of chalk were used per day than at first?.....
3. Several boys went on a bicycle trip of 1,500 miles. The first week they rode 374 miles, the second week 264 miles, the third 423 miles, the fourth 401 miles. They finished the trip the next week. How many miles did they ride the last week?.....
4. Forty-five boys were hired to pick apples from 15 trees in an apple orchard. In 50 minutes each boy had picked 48 choice apples. If all the apples picked were packed away carefully in 8 boxes of equal size, how many apples were put in each box?.....
5. In a certain school 216 children gave a sleigh-ride party. They rented 7 sleighs at a cost of \$30.00 and paid \$24.00 for the refreshments. The party traveled 15 miles in 2½ hours and had a very pleasant time. What was each child's share of the expense?.....
6. A girl found, by careful counting, that there were 2400 letters on one page of her history, and only 2295 letters on a page of her reader. How many more letters had she read in one book than in the other if she had read 47 pages in each of the books?.....
7. Each of 59 rooms in the schools of a certain city contributed 25 presents to a Christmas entertainment for poor children. The stores of the city gave 1986 other articles for presents. What was the total number of presents given away at the entertainment?.....
8. Forty-eight children from a certain school paid 10c. apiece to ride 7 miles on the cars to a woods. There in a few hours they gathered 2765 nuts. 605 of these were bad, but the rest were shared equally among the children. How many good nuts did each one get?.....

Total

Answer	

by each pupil are counted and thus is determined the speed rate for each pupil. By averaging the various rates, one finds the average

speed of the class. By counting the number correct and the number incorrect, and calculating percentages, one has the relative accuracy of each pupil; and by averaging the accuracy coefficients, one can determine the average accuracy for the entire class. Table I shows the average speed for each of the school grades in each of the eight operations based upon the speed measurement of about nine thousand pupils distributed among a dozen different cities. For the first five scales only the number of correct operations are shown. For scales No. 6, 7, and 8 both "attempts" and "rights" are shown.

TABLE I\*  
GRADE AVERAGES FROM TOTAL DISTRIBUTIONS

GRADE NO.	AVERAGE OF SCORES FOR EACH TEST	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6		No. 7		No. 8	
							Ats.	Rts.	Ats.	Rts.	Ats.	Rts.
1.....	55	6	6	..	..	29	...	...	.....	.....	...	...
2.....	75	21	12	10	12	51	...	...	.....	.....	...	...
3.....	525	26	19	16	11	63	2.8	2.1	5.4	1.7	2.7	0.6
4.....	1,222	33	25	23	21	70	3.7	2.5	6.6	3.6	2.6	0.8
5.....	1,177	40	32	30	28	80	4.4	3.4	9.0	5.3	2.8	1.2
6.....	1,282	46	37	34	35	88	5.1	4.4	10.3	6.9	3.4	1.7
7.....	1,432	51	40	38	38	98	5.9	5.2	11.5	7.6	3.7	2.2
8.....	1,370	57	45	43	44	102	6.8	6.1	13.1	8.9	4.1	2.7
9.....	412	59	47	45	47	108	6.9	6.4	13.7	9.5	4.1	3.1
10.....	216	57	45	43	46	112	7.2	6.7	14.0	9.5	4.1	3.1
11.....	151	59	47	44	48	114	7.9	7.4	14.4	9.4	4.5	3.3
12.....	169	61	48	44	49	112	7.7	7.2	14.9	10.8	4.6	3.6
13.....	462	71	56	50	56	116	8.6	8.2	16.8	12.6	5.3	4.0
14.....	131	74	51	58	59	124	9.7	9.1	17.2	11.8	5.4	4.1
	8,679†											

\* S. A. Courtis, "Standard Scores in Arithmetic," *Elementary School Teacher*, November, 1911 pp. 127-37.

† Certain of the tests were omitted by several schools, thus materially reducing the average. For most of the tests, however, the total number of scores is over 9,000.

Mr. Courtis is of the opinion that the averages may represent approximate norms for the earlier grades. For the later grades, however, they probably are below what ought to be expected. Taking, therefore, the averages for the third grade as normal for the third grade, but for the eighth grade taking a speed rate such that 70 per cent of the pupils fall below it and 30 per cent rise above it, he plotted a smooth curve having the same general form as the average curve and coinciding with it in the lower grade. From this curve he calculated the probable

standard score for each of the grades between the third and the eighth. Table II represents his "standard scores." This table shows what in his opinion, based upon the averages, ought to be expected of each of the school grades in these eight kinds of mathematical operations.

TABLE II\*  
STANDARD SCORES

Test No.	No. 1	No. 2	Nos. 3 AND 4	No. 5	No. 6		No. 7		No. 8	
					Ats.	Rts.	Ats.	Rts.	Ats.	Rts.
Grade 3...	26	19	16	58	2.7	2.1	5.0	2.7	2.0	1.1
Grade 4...	34	25	23	72	3.7	3.0	7.0	3.3	2.6	1.7
Grade 5...	42	31	30	86	4.8	4.0	9.0	4.9	3.1	2.2
Grade 6...	50	38	37	99	5.8	5.0	11.0	6.6	3.7	2.8
Grade 7...	58	44	44	110	6.8	6.0	13.0	8.3	4.2	3.4
Grade 8...	63	49	49	117	7.8	7.0	14.4	10.0	4.8	4.0
Grade 9...	65	50	50	120	8.6	7.8	15.0	11.0	5.0	4.3

\* *Courtis, op. cit.*, p. 135.

Translating this table into words: "At the end of a year's work, an eighth-grade child should be able to copy figures in pencil on paper at the rate of 117 figures per minute; to write answers to the multiplication combinations at the rate of 49 answers per minute; to read simple one-step problems of approximately 30 words in length and decide upon the operation to be used in their solution at the rate of 8 examples a minute with an accuracy of 90 per cent; to work abstract examples of approximately 10 figures (twice as many for addition) at the rate of 14.4 examples in 10 minutes with an accuracy of 70 per cent; to solve two-step problems of approximately 10 figures at the rate of 5 in 6 minutes with an accuracy of 75 per cent. At the present time 70 per cent of the eighth-grade children cannot meet these standards. But it must be borne in mind that 3 per cent of the fifth-grade children can, and that experience has shown that individual care and a very little, well-managed drill produces marked changes in the ability of most children."<sup>1</sup>

To translate the table into words in another way: In simple addition operations, the third-grade teacher should bring her pupils up to an average of 26 correct combinations per minute. The fourth-grade teacher has the task, during the year that the same pupils are under

<sup>1</sup> *Courtis, op. cit.*, p. 136.

her care, of increasing their addition speed from an average of 26 combinations per minute to an average of 34 combinations per minute. If she does not bring them up to the standard 34, she has failed to perform her duty in proportion to the deficit; and there is no responsibility upon her for carrying them beyond the standard of 34. Her task is simply to increase their addition rate from 26 to 34. The fifth-grade teacher is to take pupils with an average rate of 34 and bring up their speed to an average of 42, a perfectly definite task. The sixth-grade teacher is to take pupils with an average of 42 and to carry them before the end of the year to an average of 50 combinations per minute. The seventh-grade teacher increases their ability from 50 combinations to 58. The eighth-grade teacher takes them with 58 combinations to the minute and brings them up to 63, and the ninth-grade teacher is to add the small increment of 2 combinations per minute during the ninth grade. In like manner, in the case of each of the other operations, each teacher has his own special increment to add to the work of his predecessor before turning his partially finished product over to the next teacher in the series. This table of standard scores of Mr. Courtis shows us the ultimate standard that is to be attained at the end of the school course, and it also shows the progressive standards to be attained at each stage of the process from the beginning to the end. It gives us the two things required by the two principles of supervision stated at the heading of this chapter.

1. *Value to the teacher.*—Each teacher can know accurately what is expected of her. The sixth-grade teacher, for example, knows that, in the solution of a series of problems involving all of the fundamental operations, of the difficulty of the examples of scale No. 7, the pupils when they come to her from the fifth grade should be able, in a 12-minute test, to solve 11 of these problems with an accuracy of 60 per cent. She can therefore know in the beginning whether they are up to standard or not. She also knows definitely that it is her task to increase their ability in such degree that at the end of the year these same pupils will be able to solve 13 of these same problems in 12 minutes, with an accuracy of 64 per cent. If the standards are rightly placed she must not fall short of this, neither must the pupils go beyond it. The standard so set up is to be attained, neither more nor less. Her task is equally definite in the case of each of the other combinations in which the students are to be trained.



Having these definite tasks laid upon her, she can know at all times whether she is accomplishing the things expected of her or not. She can herself know whether she is a good teacher, a medium teacher, or a poor teacher. She can know when she needs help, and when she needs no help; when she needs to use better methods, and when she has found better methods. She can know how much time to give to any specific task. If the time allotted to her is limited, she can know whether within the time given she can bring thirty pupils to the standard required, or fifty pupils, or eighty. She can judge the efficacy of the books and appliances that are furnished her. The teacher is thus prepared to judge herself and all her methods and appliances. Being thus able to judge of her output, there is no chance of injustice being done her. She can be sure of receiving help in proportion to need, and recognition in proportion to merit.

The child becomes the center of her educational consciousness rather than the machinery of education. Her problem is no longer the mere turning of the machinery that is given her, letting it grind out whatever educational product happens to occur, good, bad, or indifferent. Her task is to turn out a product of a definite sort in the shape of developed abilities within the pupils. Manipulating the machinery of education then becomes the means and not the end. Her vision must be kept focused on the ends to be reached—the awakening of latencies into actualities within the pupils.

This putting of the educational product in the forefront of education means the establishment of a continuous record of progress in the case of each of the products. If in the case of addition, the standards are 26, 34, 42, 50, 58, 63, 65 successively, then for each particular pupil we must have in a parallel column the record actually attained by him for each of these successive stages of advance, to see whether he has kept up to standard, fallen below it, or advanced beyond it. Such a continuous record must be kept, naturally, in the case of each of the many score educational products so as to show how each pupil at any time measures up against the standard. Simpler than parallel columns of figures would be graphical representation, the only objection being the necessity of increased space and labor.

Graphical representation might be made as in the excellent condensed form presented by Mr. Courtis in his circulars and reproduced in Fig. 1.

The vertical columns represent the work that should be done by the various grades. The line representing the work done by a seventh-grade pupil, let us say, would, if the pupil's work was altogether normal, lie wholly in the seventh column. If the curve should move to the left into lower columns, it would indicate deficiency; if to the right into higher columns, it would indicate superiority in his work.

Another plan of graphical representation, requiring more space, is

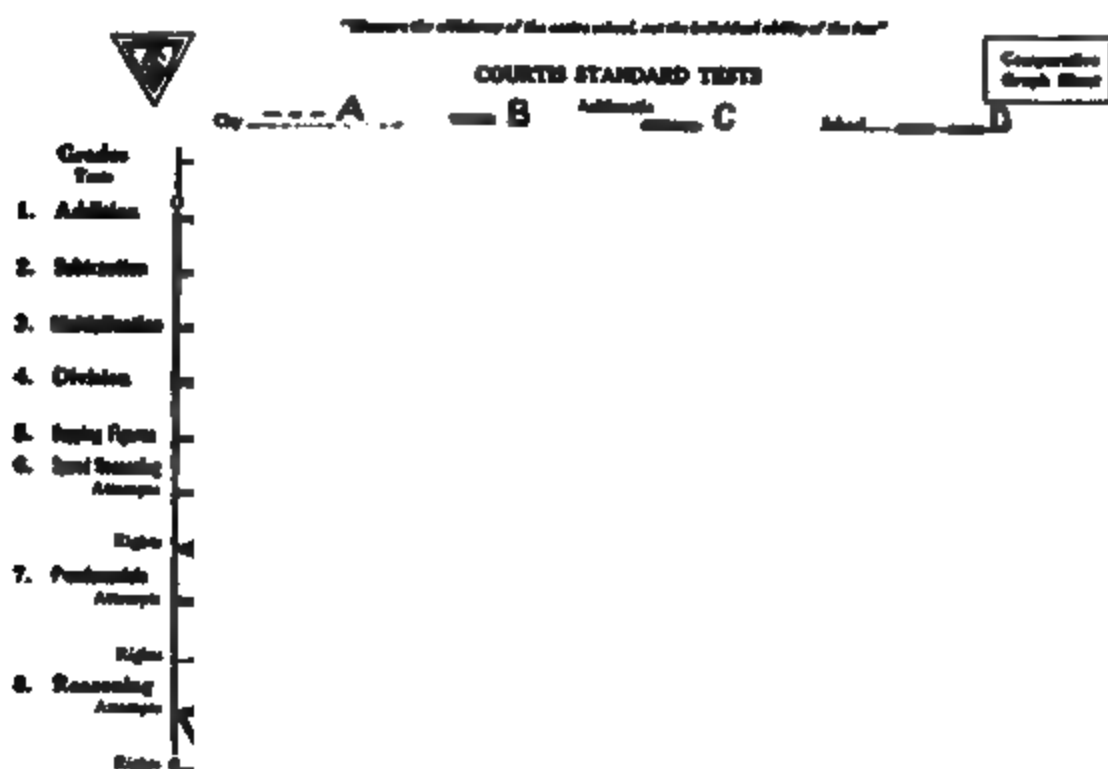


FIG. 1.—In the figure above curves A and B are of two individuals in the same class. From an Indiana school. Note that A is practically normal except in the last test (shown by the fact that the curve is almost a straight line and lies almost wholly within the boundaries of the fourth grade), while B is below grade in every test but one and is particularly weak on reasoning.

Curves C and D are two measurements of the same child, one in September and the other in June. From a Michigan school. Note the correction of many defects and the balance of the final scores.

(Cut presented through the kindness of Mr. Courtin.)

shown in Fig. 2. On the five records of pupils are placed dotted lines which represent the normal progressive standards for speed in solving the examples of scale number 7. The continuous lines represent the performances of five different students. The records show that evidently pupil No. 1 does normal work; the line of performance follows the line of expectation. With pupil No. 2, the line of performance is

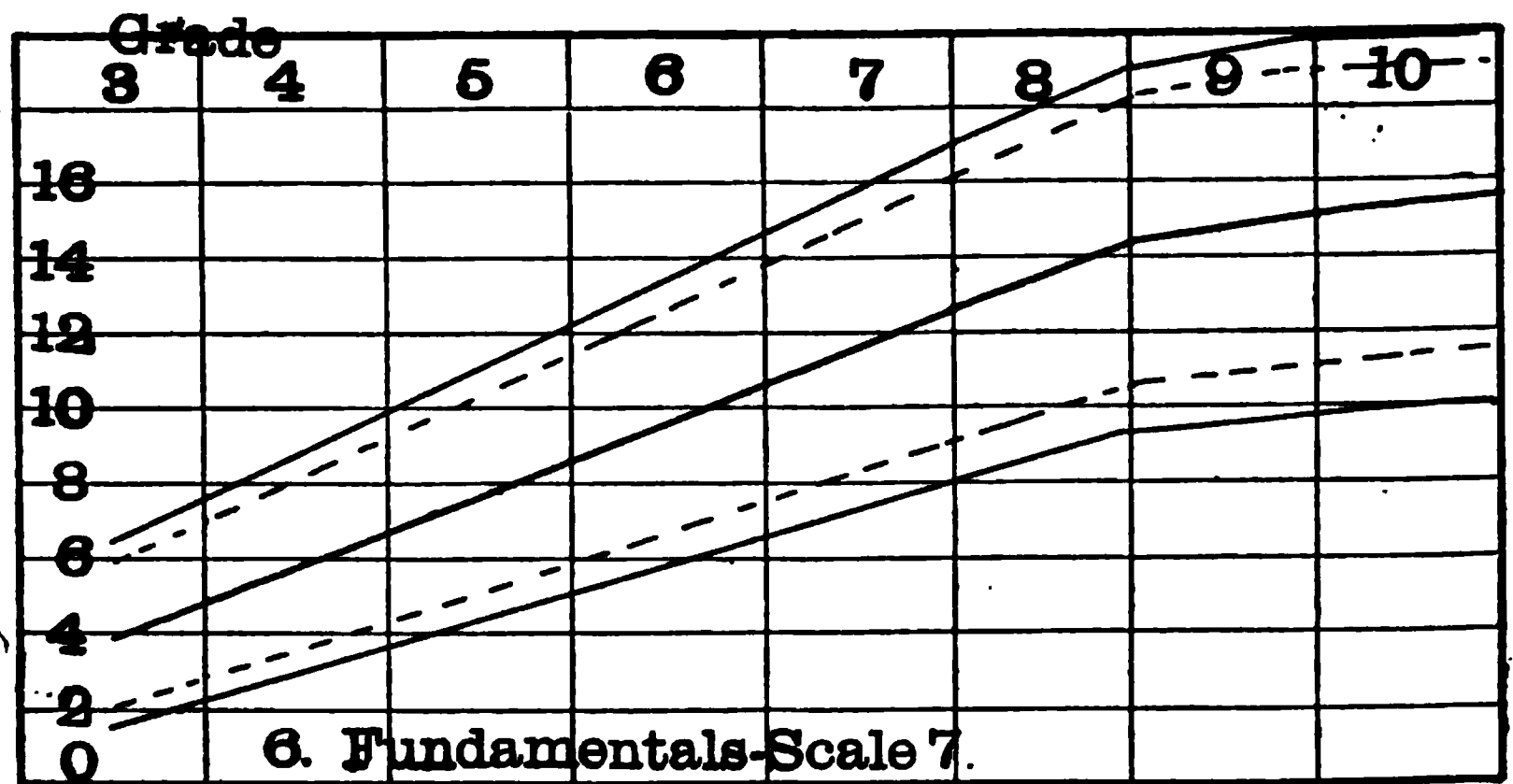
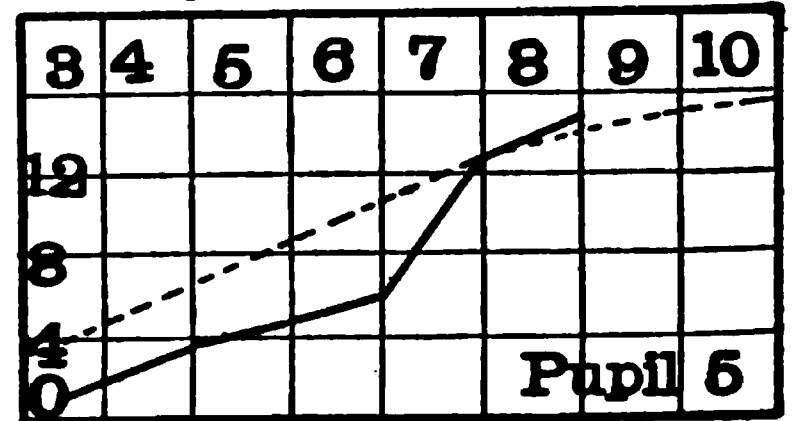
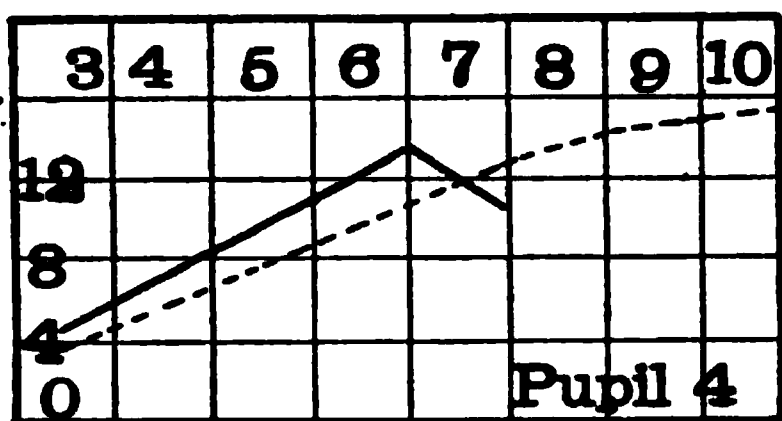
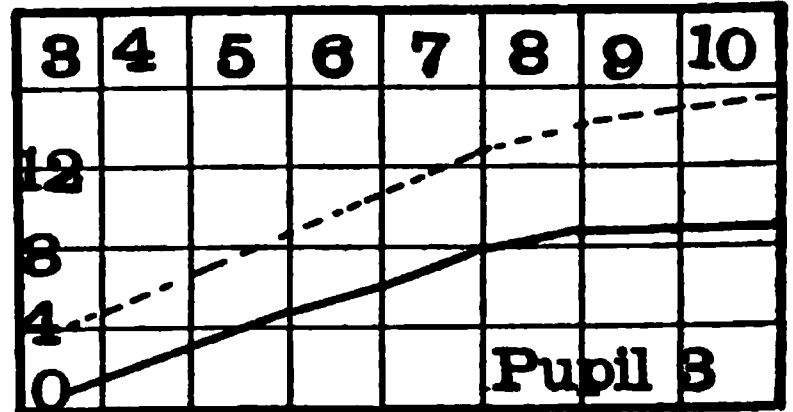
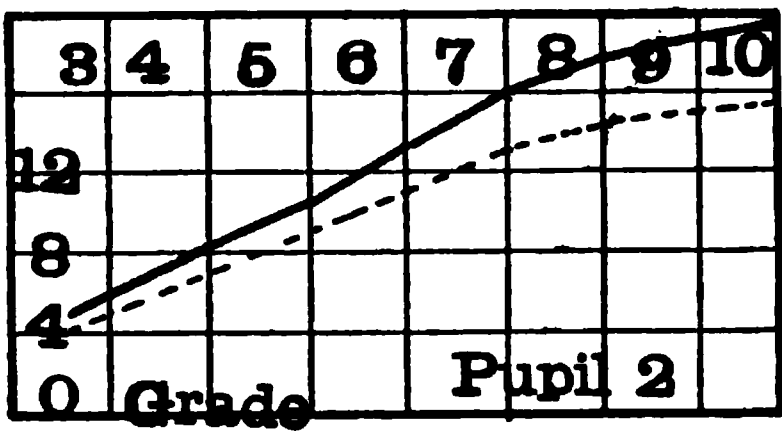
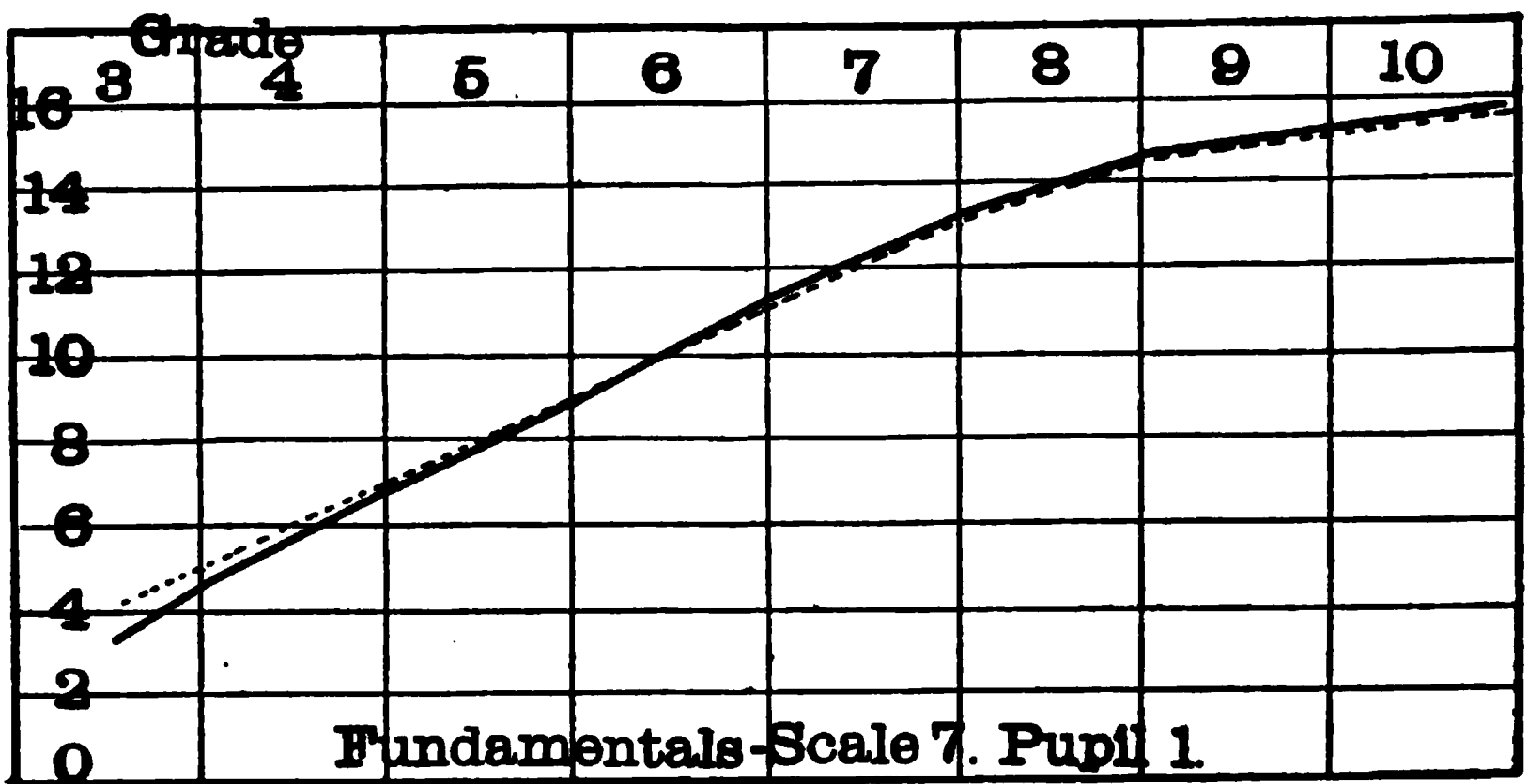


FIG. 2.—CONTINUOUS RECORDS OF PUPILS

much above the line of expectation; the pupil is evidently one of exceptional ability in this respect. Pupil No. 3 is obviously of low ability; his performance is uniformly and continuously below the standard expectation. Pupil No. 4 is evidently a bright pupil gone wrong for some reason or other that requires investigation and correction. Any sudden change in the line downward is naturally a call for help, and shows the teacher and supervisor where to focus their efforts. A continuous, apparently consistent record much below normal may likewise be a call for help. There may be some removable obstacle, continuously at work. Pupil No. 5 represents a pupil suffering from a removable difficulty. When the difficulty was removed, he rose to normal.

Evidently standards should be diverse according to native ability. For a pupil that starts off as pupil No. 2, the ultimate standard should be very different from the ultimate standard of a pupil who starts off like pupil No. 3; and the progressive standards should be correspondingly different. There ought certainly to be not less than three sets of standards for the varying native ability: one for the 60 or 80 per cent of pupils lying near the normal, another for the 10 or 20 per cent of pupils who have high ability, and a low standard for the 10 or 20 per cent of pupils who are much below the normal in ability. The pupil would select his own standard by his own performance. There could be absolutely nothing arbitrary about it. On record No. 6, in Fig. 2, three such standards are shown. The dotted lines might indicate divisions at such levels that 20 per cent of the pupils, if distributed according to the normal probability curve, would find themselves above the upper dotted line, and 20 per cent below the lower dotted line. Now in actual practice using this particular printed form as the basis of the graphs, any pupil whose record persistently fell below the lower dotted line might use the low standard of performance as his norm. Those whose records were between the two dotted lines might use the central normal line as their norm, while those whose records were above the upper dotted line would regard the higher series of standards as their norm. The pupil places himself, and for him to do so must necessarily be a healthy thing for him and for all concerned.

This differentiation of standards on the basis of native ability is closely related to the differentiation of standards according to vocational and social destiny. In the cases in question those pupils who fall into the lower 20 per cent and thus require a lower standard of performance

than the average must be prevented from entering any field of work that requires rapid, accurate, mathematical calculation, unless it can be proven that their inability is due to defect, and unless this defect is actually removed and they rise into the higher ranks of their classes. Pupils whose performance falls near the middle of the scale and whose standard is the one of mathematical mediocrity should be strongly urged not to undertake vocational labor that requires strenuous mathematical ability. This differentiation of standards and the letting of pupils find their place becomes then one of the strongest instruments in the hands of the schools in the matter of vocational guidance.

2. *Value to the supervisor.*—The building principal or supervisors of special subjects can tell by glancing over the continuous records of the pupils under any given teacher and comparing them with the standards set for pupils of those particular classes whether the teacher is securing the full results expected in the case of the different pupils, and whether in so doing she is handling the normal number of pupils. The teacher who falls short of this standard; or, when standards are reached, is able to bring only a small number of students up to these standards, is unmistakably shown to be a weak teacher. The one who can bring a large number of pupils up to the standard for those pupils in a minimum of time can be known instantly as a good teacher. A supervisor can thus know absolutely where he needs to give help and also where no help is required of him. Moreover, looking over the record of the students, the supervisor is apprised of just the thing in which a teacher appears to be deficient, and can not only know what teachers to help but in which particular department of that teacher's work he must give the most help and in which department the least.

These standards are not set up by the supervising principal himself, nor are they set up by the teacher. The standards represent common aims toward which both must strive. The success of both depends upon the ends being attained. Principal and teacher are thus put upon a common level. Neither exercises arbitrary authority over the other. It is a case of the stronger helping the weaker for the success of both; or perhaps better, a case of the specialist in one aspect of the work helping the specialist in an allied field of co-operative endeavor, for the good of both.

The supervising principal can further know whether the weak or indifferent teacher to whom he is giving advice and assistance of every

necessary sort is in fact making improvement; whether she is, in fact, taking advantage of the aid that is being given. He can know, from measuring the results of her work, whether to make more strenuous effort, or whether he can relax his efforts. He will then have incontestable evidence of inefficiency against the weak teacher who cannot or who refuses to improve. And the present-day difficulty of removing such a teacher from the service, transferring her, or retiring her, will be instantly overcome. The principal can also know when he has given enough help to the teacher, and when no further help is required.



FIG. 3.—BALANCE OF COURSE OF STUDY. GRAPH OF GRADE AVERAGES.

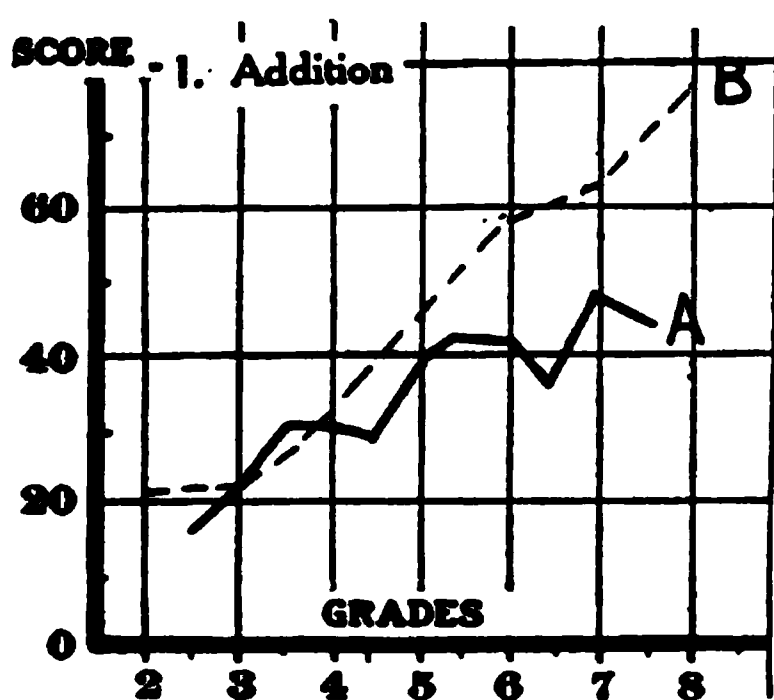
The curves show that the course of study emphasizes the abstract work at the expense of reasoning. A Virginia School.

(Cut loaned by Mr. Courtin.)

The principal can judge of the course of training given by all his teachers whether weak or strong. Fig. 3 pictures the situation in a school where the emphasis is very irregular. A principal, finding such weakness in arithmetical reasoning as the figure exhibits has pointed out to him in unmistakable terms just where readjustment in the course of study is needed.

When the principal can state the results of the efforts of his teachers in terms of definite measuring scales, it will be possible for him to compare the results obtained in his building with corresponding results of other buildings within the city. He can know whether the results of

the work of his building are high, medium, or low. He can know whether the methods which he sanctions are getting proper results as compared with methods used in other buildings. He can tell whether the books, appliances, and the distribution of the day's time are securing the results obtained in other buildings. At present it is practically impossible for one building principal to know how his work compares with the work of other buildings in the city. He has too little time for visiting, and when he does visit he has no accurate scales with which to measure the work so as to make the necessary comparisons. If he is reduced in rank by the superintendent, he feels that it is an exercise of arbitrary



A, poor supervision. Much variation from grade to grade and a low final score. From an actual school.

B, close supervision. Constant, steady growth from grade to grade and a high final product. From another school.

FIG. 4.—EFFICIENCY OF SUPERVISION

authority and that injustice has been done. If he sees another principal promoted to a higher rank, or promoted over his head, he feels again that it is an exercise of arbitrary authority and not primarily the reward of merit; and he feels again that injustice is being done. But when he can definitely know how the work of his building compares with the work of principals of other buildings, arbitrary authority in his mind is replaced by absolute standards, and he can know whether it is merit that wins or not. Under these circumstances he can know that it is merit that wins; since merit will win when it is possible to measure merit.

With scales of measurement and standards of performance such as described, it is no longer possible for a principal to hide behind the plea that he has an inferior social class in his school, and, therefore, high performance should not be expected of him or of his teachers. The

differentiated standards for the bright, the normal, and the dull make allowance for this difference in the quality of the pupils' ability. It is a question of a principal's securing from his building a proper number of units of product of the standard that is naturally set by the nature and destiny of the pupils themselves. With standards rightly placed, the amount of effort required to lift a pupil from one stage to the next on the low level will be approximately equal to the amount of effort required to lift a student from one stage to another upon the higher level. It is a question of the quantity of units that result from the labor. The fact that the raw material is naturally poor is eliminated as a disturbing factor in the comparison of building with building.

3. *Value to the superintendent.*—The superintendent, by glancing over the number of units of results obtained by each teacher in each building in his city, especially when thrown into distribution tables and graphs, can locate instantly the strong, the mediocre, and the weak teachers. By noting the distribution by buildings, he can also see at a glance what building principals are doing a superior grade of work, what ones relatively poor work. Thus he is able to tell at once where his strong subordinates are and where his weak ones are. He can know with certainty the building principals and the teachers that are especially in need of help from the central office. It tells him where work is needed and the degree in which it is needed. It forms the only secure foundation on the basis of which to distribute his efforts so as to bring about within the system the greatest possible degree of efficiency. Without these definite facts, he gropes in the vague realm of general impressions. He cannot know with certainty where his help is most needed, nor can he know the degree in which it is needed.

With figures before him of the sort indicated, he can not only know what teachers are weak, but he can know in what particular topic they are weakest. Thus the expert help sent to these teachers can be of the sort from which they are able to profit most. There is no need of sending help to a generally weak teacher in the matter of tasks in which the teacher happens to be strong, and the work satisfactory. A scientific placing of the supervisor's efforts cannot be accomplished until we can accurately locate weakness with certainty.

With standards and scales of measurement, the superintendent will be in a position to measure the relative values of different methods, different textbooks, different amounts of time given to a topic, and the



like. At present it is not considered safe to experiment in a public-school system in any great degree because of the great difficulty of knowing when things are going wrong in time to prevent harm being done the pupils. But when definite measurement is possible, the workers cannot be kept long in doubt as to whether a given method or a given textbook is securing the requisite results. The superintendent can test out two given methods of teaching a topic, for instance. In one building some reliable teacher uses the one method, in another building another reliable teacher uses another method. The results of the different methods can be measured by scales and secure judgment made as to which is the superior. Where difference is pronounced, the poorer method can be discarded, the better method standardized for all the schools. In judging textbooks likewise, one kind of book can be used in certain buildings and another kind of book used in other buildings. Results can be compared one with another and measured. It can be definitely known which of the books is the superior, and the poorer one can be discarded. Textbook companies can be forced to expend the whole of their competitive energies in improving the qualities of their books.

The superintendent will also have for the first time the ability to compare the work of the schools within his city with the work of schools in other cities. The plan has already been introduced into the field of educational finance, where it is much easier to define items to be measured, and where the scale of measurement lies ready at hand in our money system. The Bulletin of the U.S. Bureau of Education by Mr. Updegraff, entitled *A Study of Expenses of City School Systems*, shows the method and the possibilities of such comparisons.

With these standards, a superintendent can judge himself. He can know whether the results obtained in his city are superior, inferior, or mediocre. He can see the size of the task that he must undertake with his principals and teachers in order to bring his city up to standard requirements. He can bring the board to see the nature of the problem, and this will tend at least to stimulate them to furnish the necessary equipment, supplies, and teaching power to accomplish the task. Moreover, he can bring the community to see the relative deficiency of results in their city and can stimulate public opinion, in a manner the most effective, toward better school support and co-operation. He has unanswerable arguments on the basis of which to urge improvement in the quality of teachers, in the quality of books, in the quality of

buildings, in the size of classes, in methods employed by the teachers, and every other thing that makes for increased efficiency. He can talk a language that can be understood by the community. The isolation of the school, which is at the present time the greatest obstacle to improvement from within and the greatest obstacle to community understanding and co-operation from without, can be overcome when teachers, parents, school boards, business men, can discuss results in specific understandable terms. Such is not possible at the present moment. To create this common language and common basis of understanding between school and community must of necessity be one of the greatest of the values to be derived from the establishment of standards and of scales of measurement for the various educational products.

4. *Value to the student.*—Perhaps it may here be objected that the effect of standards of achievement upon the pupil is a teaching problem rather than a supervisory problem. As a matter of fact, however, looking at a school system as a large organization of individuals for the purpose of turning out certain necessary human products, the pupils are in fact the ultimate workers. They are the rank and file over whom the teachers stand in supervisory capacity. The work is a development of the potential abilities which the pupils carry around within themselves into actual abilities of a given degree. These actual abilities are the educational products. It is the work of the student, not the work of the teacher, that produces these products. The teacher is supervisor, director, guide, stimulator, of the rank and file of the workers in order to bring about on the part of the latter the development of these various abilities. The teaching problem is in fact a supervisory problem at the first level.

With standards of addition, subtraction, multiplication, and the rest before him, this ultimate worker, the pupil, can know definitely what is expected of him. The teaching problem is then to teach the pupil how to study, and properly to adjust stimulations so as to produce the desired effort. A tremendous amount of effort on the part of the teacher now expended in carrying the student along passively on his back can be dispensed with; the student can be made to walk and bear his own burdens with this own strength and gain further strength thereby. Time can be gained for pupils and for teachers which can be expended more profitably.

It is unfortunate for our discussion that we must in such large

measure employ the future tense. Enough has already been done by Curtis, Thorndike, Ayres, Freeman, Wilson, Bliss, Hillegas, and many others, in these matters, to justify all these statements when taken qualitatively. It is yet too early, however, to make even quantitative estimates. We can be sure that, when the pupil knows what he should do, and when the teacher knows the best methods of stimulating him, efficiency in the work of the pupil will be increased. Wilson and Bliss present a few figures showing large improvement. We cannot say, however, whether the increase will be 50 per cent or 200 per cent. Probably the figures will be large when matters have been worked out.

Although the work of Mr. Curtis represents the most advanced work of its kind in the field at present, yet it is but the beginning of the task of setting up practical standards of arithmetical ability. His standards are based upon the average of pupils in the schools as they are. It is to assume that what we are doing is about right, the task of setting standards being but a putting into definite terms of things that are otherwise indefinite.

Now as a matter of fact, the average performance of our schools may or may not be closely related to the thing that we ought to do. If we were to determine the standards for the teaching of agriculture on the basis of the average amount of work that is now done and the average standard that is now reached, it is probable that our standards would be very far below those that ought at present to be set up. If we take the average performance of high-school girls in algebra and use this as the basis for a determination of proper standards for algebra, it is probable that our requirements would be much higher than the actual needs of girls in the matter of algebra. What the schools are doing cannot be used as the sole basis for establishing the ultimate standards of performance. Neither can it be used as the basis for establishing the progressive standards. It assumes that the work of the schools is right and on the basis of this establishes standards, when, as a matter of fact, we must first establish our standards before we can even so much as judge as to the rightness of school work.

Where then are standards to be found? Recurring to our illustration at the beginning of this chapter, it was noted that standard dimensions and qualities of steel rails are not determined by those who are engaged in the manufacture of steel rails, but by those of the transportation world who use the product of the steel plant. Now the relation of

the school system to the various departments of the world's activity is exactly the same as the relation of the steel plant to the transportation industry. Each department of the world's affairs demands of the schools educational products of the kinds needed by this particular department. Now taking mathematical ability, since that is the product under discussion here, the commercial world is demanding of us standards of one sort; the world of mechanical industry places other kinds of requirements upon the schools, and the need for different standards; the home-keeping vocations of women demand still other standards of mathematical ability. It is the need of the world of affairs that determines the standard specifications for the educational product. A school system can no more find standards of performance within itself than a steel plant can find the proper height or weight per yard for steel rails from the activities within the plant.

Take the case of a man who builds a house with the aid of a contractor. It is for the man to specify in definite terms what he wants. Suppose, however, the man says to his agent, "Here are \$5,000; build me a house." Nothing is set down for the agent to live up to in the way of quality of materials, quality of workmanship, or plans. The agent is left to self-interest and his own ideas. It is probable that neither the one nor the other will bring about a result satisfactory to the principal to the transaction. An unsatisfactory result is practically inevitable. The principal, however, cannot justly blame his agent for not giving satisfaction. His agent was not properly provided with instructions as to what to do, or with necessary limitations as to what he must not do. Now when the general society as principal says to the school as its agent: "Here are \$35 for each pupil sent to you; take it and educate them." The agent in this case is as helpless and as irresponsible, necessarily, as in the other case. Positive instructions are not given; limitations are not set. He, too, is free to follow self-interest and his own ideas. Satisfactory results are not probable. The principal, however—society in this case—can have no just grounds for complaint. It did not properly instruct its agents.

It may be said that general society speaking through its representatives has specified the work to be done. It has said that we must teach reading, spelling, writing, composition, arithmetic, geography, history, hygiene, elementary science, and manual activities. So it has; but even if it had not, the school would be doing these things, anyway. Their

instructing the school in terms more general than the actual arrangements of the school already provide does not accomplish the purpose. It is altogether too general, too indefinite. It is much the same as if the principal to the building transaction should say to his contractor when asked for instructions: "Oh! Make a dozen windows, a dozen doors, six or eight rooms, a roof, some partitions, and a stair." Whatever design the contractor should draw up, or whatever materials he should use, he would make these things, anyway; and his principal's giving instructions in such general terms is of no more service than if he gave no instructions at all. Instructions on every point must be definite; the exact arrangement of every room, door, window, wall, in fact, every element in the building, exact to a fraction of an inch, must be exactly stated. Nothing less will serve. Now in the case of the instructions of our general society to its agent, the school, specifications must be equally definite. This principle is fundamental. We are scarcely prepared to take any step forward in education until we have taken this step.

A school system is one of the world's practical productive concerns. A railroad, for example, not only requires steel but it requires steel that is fashioned into a shape that can be used—rails, locomotives, cars. For its operatives, it requires not merely men, but men whose abilities have been shaped into the fashion that can be used most effectively. Now it is the business of the factory management to furnish the material appliances in their proper forms. It is equally the business of the educational management to furnish the abilities of the operatives in the proper forms. The standards must of necessity be determined and stated, in the one case as well as in the other, by those that use the product, not by those who produce it. Standards of addition, subtraction, or other mathematical operation, can be determined only by the needs of that department of human affairs where that ability is to be used. Standards are to be found in the world of affairs, not in the schools.

The determination of standards on the basis of the averages of the work actually done in our schools is to establish, for the most part, the same standards for all classes of pupils. The world of affairs, however, lays very different requirements upon different classes of its workers, and therefore, in the case of each, lays different requirements on the school as to the educational products. If standards are adjusted to needs—and they must be—then in these matters of mathematical speed and mathematical accuracy, we must have a different set of standards for

each of a number of vocational classes. The requirement for some will be high; for others, it will be low. In the matter of algebra, for example, some forms of labor would set up high standards of requirement; others would make no requirements at all.

Before we can have scientific supervision in education, of the efficient sort already to be found in the best portions of the business world, it will be necessary to make careful surveys of community needs, on the basis of which to determine the necessary standards. These surveys should be made, not by school people, but in each department of human affairs by those who are most familiar with its needs. The commercial world can best say what it needs in the case of its stenographers and accountants. A machine shop can best say what is needed in the workers that come to it. The plumbing trade contains the men who are best able to state the needs of those entering upon plumbing; and so on through the entire list. If the various departments of the business world could thus state in specific terms the kind of educational product that it desires in the workers that come to it, it would be performing a far more valuable service than the present method of complaining that the schools are not turning out what they want, when, as a matter of fact, they have never told the schools exactly what they do want. The schools are in the position of the steel plant that receives the order from the railroad: "Make us some steel rails." Such a railroad need not expect to be satisfied with what it gets. Its specifications are too vague. Neither can the world expect to get a good product from our school systems until it defines what it needs in specific terms.

Although the burden for the determination of the ultimate standards for educational products lies rightly and necessarily upon the various departments of the general society of which the educational organization is but an agent, still the school systems cannot stand idly by and passively wait until these various departments of practical affairs present their statements as to their educational needs. These various departments of affairs require active and vigorous leadership for their educational thought; and they require large quantities of expert information and advice. In general, they do not understand in clear terms their relations to public-school education; they do not clearly appreciate the responsibility that lies upon them for definitely saying what they want. On the other hand, they do not know the possibilities of improving public-school education by absolving their portion of educational responsibility.



In general, when they want a thing done better than the public schools are doing it, they desire to set up a special system of schools, looking upon public education as hopeless. Simply they do not know how to use their agent so as to get the things they need.

The responsibility probably lies upon those who direct educational affairs to make clear to the various departments of human activity this relationship, and the necessary division of responsibilities. The method of making this relationship clear is probably not to give these various organizations and classes of men good advice as to what they should do. A better way probably is to set on foot the actual practical work of determining in co-operative fashion the particular standards of speed and accuracy for the various desirable mathematical operations needed. The growing complaint as to the inefficiency of our public-school education, the growing insistence that new kinds of schools be established for giving the kind of training that the world can use, the insistence that there be advisory boards drawn from the various departments of affairs directly concerned—all these things show a vague awareness of the relationship that should exist between the practical world and the department that supplies ability for the use of this practical world. The world thus proves itself ready for the leadership and for the co-operative tasks here outlined.

The case is different, however, as to the progressive standards that will lead ultimately to these final standards. After society has given to the school its ultimate standard in any particular case, it then is certainly the business of the educational and psychological experts to determine the time of beginning, the intensity of the work, and the standards to be attained in each of the successive stages.

The standards for the educational product required by the first principle stated at the head of this section must necessarily be socially determined by matters that lie outside of the school system. The progressive standards required by the second principle must be psychologically and experimentally determined by expert educational workers within the school system itself. This is a special professional problem requiring scientific investigation of a highly technical sort. It is a field of work in which the untrained layman can have no opinion and in which he has no right to interfere. Society is to say what shall be accomplished in the ultimate education of each class of individuals. Only the specialist can determine how it is to be done.

Mr. Curtis does not claim that his "standard scores" are final, nor that the ultimate standards are determined on the proper basis. He is doing pioneer work, and all that he claims is that the standard permits the rendering definite of educational ends that are now vague, inchoate, indefinite. It means also the setting-up of standards that are superior to those of most of our schools at the present time—standards, too, that are possible as shown by the fact that they have been attained and frequently surpassed by a number of schools tested. His work shows progressive standards that are both actual and possible in a good school system. His scales for the eight operations are the best that have yet been devised for measuring these forms of work. While his work has only begun, it has gone far enough to point clearly to the long program of investigation that lies before us. It has gone far enough also to show that the existence of standards must lie at the foundation of scientific direction and supervision of educational affairs.

So much time has been given to the Curtis standards and scales of measurement because of their definiteness and completeness, so far as they carry the work. Probably the entire subject of public-school mathematics will be the easiest subject in which to develop ultimate and progressive standards, together with scales of measurement. By developing the easiest field first we shall acquire the technique and the experience that will permit the solution of the progressively more and more difficult tasks presented by the more intangible portions of education.

Another subject in which standards might be determined with relative ease is spelling. Although much good work has recently been done in this field on the side of methods by Pearson, Wallin, and Suzzallo, yet so far as I am aware, little has been done in the way of determining standards. It is usually assumed that pupils are to be brought up to a standard of absolute perfection in spelling. Determinations have not been made as to the range of words to be covered on the basis of this standard.

Now it is probable that there is a list of words which, for any given class of students, ought to be spelled by them with an accuracy of 100 per cent. There probably is another list to be determined in which an accuracy of 98 per cent should be the standard; a third list, in which the accuracy might be 96 per cent; and a fourth list, 94 per cent. There is probably, for any given class of people, a list of words used so very



rarely, and which are relatively so difficult that an accuracy standard of 75 per cent would be high enough; and another list in which an accuracy of 50 per cent would be sufficiently high.

Moreover, it is also reasonably certain that standards of accuracy should be different for different social and vocational classes. For the stenographer, proofreader, or telegrapher, the standard of accuracy should be very high for a very large list of words; whereas, for the plumber, the carpenter, or the farmer, the standards of accuracy might well be considerably lower, and the range of words covered considerably narrower.

Now what, for example, are the words that the world of affairs requires the stenographer to spell with an accuracy of 100 per cent? What is the list of words in which she may be permitted an accuracy of only 98 per cent? And in like manner, what should be required for each of the progressively less accurate lists? Obviously this is not a thing that the school can of itself determine. It is for the business world to say what these lists are. The task of determining the lists will be naturally a co-operative one, of school workers and business workers, as described in the discussion of mathematical standards.

After these ultimate standards are set up for the training of stenographers, the rest of the task is an expert educational one with which the outside world has nothing to do. It is the determination of the various progressive standards that should be reached at each stage of advance from the beginning of the teaching until the attainment of the ultimate standard; the determination of methods of work, of textbooks, of relative times, and the control of many other factors. The lists of words themselves together with the percentage scale constitute the scale of measurement.

With such standards, the prospective stenographer can know exactly what is expected of her in the way of spelling. The teacher can know exactly what is expected. The principal can know what is expected; and so on throughout the entire supervisory line. Moreover, proper tests can show at periodic intervals whether the standards are being attained.

Commercial courses in our high schools cannot then be accused by business men, as they are now accused in authoritative reports, of turning out stenographers who cannot properly spell. They will not be turned out until they can spell. Length of courses will then be deter-

mined, not by the calendar, but by the time it takes to finish the product up to standard. At present, the chief difficulty is that in such courses there are no standards to work to. Schools are simply grinding away without any goal in view. They move in the right direction; they may move in the wrong direction. Without a goal their efforts are relatively random, feeble, inefficient. The pupil does not know what to aim at; the teacher does not know how much to require; the principal does not know how high the teacher is aiming; the superintendent has no means of knowing the standards of either teacher or principal. The whole situation represents the jellyfish stage of organization and direction.

The desirable list of words, and the varying standards of accuracy for the lists would have to be determined in the same manner for the training in spelling for each of the large social and vocational classes. And as in the arithmetic tests, we shall again, naturally, need different standards for those of low, mediocre, and high natural ability, each pupil choosing the standard, not arbitrarily, but by the nature of the work that he does. Progress can be recorded graphically in the same fashion previously described for the arithmetic operations. His standing here again would be significant for vocational guidance. Individuals whose native aptitude kept them along the line of the lower standard would certainly be kept out of the vocation of stenographer, or newspaper compositor, or telegrapher. When such standards have been created, supervision of training in spelling is possible; without standards of some sort, there can be relatively little supervision, in fact.

In this field of spelling we have neither tentative standards such as those that Courtis gives us for arithmetic, nor any tentative scale of measurement. The few lists of words that have been used by the expert spelling investigators are altogether too brief; and their relative position in any scale altogether too indefinite to serve the purpose of standard scales of measurement. For simple comparative tests of the work of city with city, or school with school, they serve a very useful purpose and look definitely in the direction of assured progress. The work needs to be continued until we have standards that can be of permanent worth. Such standards would certainly not be unchanging. They would change as determinative technique improved and they would change with social conditions. But that even change be rational, there must be something relatively permanent to be changed.

Handwriting has made rather more progress. We have here two

good scales of quality, one by Thorndike, one by Ayres, both scientifically constructed, but on rather different bases. The speed scale is the number of letters that can be written per minute. On the bases both of quality and of speed we have already tentative standards, for the various school grades. The following table shows the standards that have been arrived at tentatively by Dr. Freeman and Superintendent Wilson:

SCHOOL GRADE	SPEED		QUALITY	
	Wilson	Freeman	Wilson (Thorndike scale)	Freeman (Ayres scale)
1A.....	12-16	20	8-10	35
2B.....	15-20	30	8-12	} 40
2A.....	15-25	40	9-12	
3B.....	15-30	} 50	9-12	} 50
3A.....	25-40		9.5-13	
4B.....	30-55	} 60	10-13.3	} 50
4A.....	40-65		10-13.6	
5.....	45-65	70	10-14	55
6.....	50-70	80	11-14	60
7.....	50-75	90	11-14.5	65
8.....	55-75	100	12-15	70
9th year.....	55-85	...	12-16	..
10th year.....	60-85	...	12-16	..
11th and 12th years.....	65-100	...	12-16	..
Comm. high school.....	65-100	...	13-18	..

These standards are drawn up on the basis of average attainments in schools as they now train in handwriting; they are not based upon the actual needs of men. The setting-up of standards, such as presented in the table, both ultimate and progressive, based upon the work within the school system itself, is naturally an enormous step in advance of present conditions; and the possession of such standards creates the possibility of supervision of the teaching of this subject. Such standards have most of the supervisory value of standards determined from an analysis of human needs. They are not so convincing, however, to students or to teachers; and probably have not the same stimulating qualities. They probably cannot be so serviceable in the co-operation of school and community in matters of stimulating effort on the part of the pupils.

The ultimate standard to be attained in handwriting cannot be determined from anything to be found within the school. These

ultimate standards can only be found in the world of affairs. And the standards will necessarily differ from social class to social class. Standards for commercial workers will have to be much higher than for literary workers. Standards for the latter need to be higher than for blacksmiths and carpenters and farmers and men who have relatively little writing to do. The ultimate standards for commercial workers should probably not be so high as was demanded ten years ago, or thirty years ago, owing to the introduction of machines for writing. Final decision of the question can be made only by the commercial world. Having the ultimate standards for each particular class, it is the special function of the expert workers to determine the progressive standards and general procedure for accomplishing the training. Here laymen can have nothing to say.

Within recent months Thorndike and Hillegas have given us a tentative scale for measuring merit in English composition. Such a scale is necessary before we can have the terms in which to define actual standards, ultimate and progressive. Just as the invention of the foot-ruler or some analogous linear measure is necessary before we can have absolute standards for the manufacture of steel rails, so in composition ability we must have definite scales of measurement established before we can set up the standards to aim at in the shaping of the product. This scale of Thorndike and Hillegas is only a scale of measurement however. There is nothing in the scale itself to say what the standards of attainment shall be. This is a matter to be determined by the needs of men. What composition ability, let us ask, is needed by men and women in each of the various walks of human life? To what standards of merit as shown by the scale of measurement is each of these classes to be brought during their training? The answer is not to be found within the school. Let educators, social workers, and plumbers get together and determine the standards for the plumber. Let farmers, social workers, and educators get together and determine the standards for the farmer. Let newspaper men and educators determine what the standards shall be for prospective journalists. The labor needs to be extended through a long list.

The scale for measuring merit in composition appears to be a more difficult thing to devise than the scales for the other subjects discussed. Several factors enter in, such as handwriting, sentence structure, spelling, rhetorical arrangement, together with the general spirit of the

thought content. Then again there are different varieties of prose composition—description, narration, and the like. It is possible, before the task of establishing standards can be accomplished, that we shall have to devise a number of measuring scales, one for each of the aspects of a composition, and one for each of the different varieties of composition. Thorndike and Hillegas have pointed the way and shown the possibilities. The large co-operative task lies upon all of us to take their suggestions and carry through the various necessary investigations to their ultimate completion. It will mean a slight increase in our work for the moment. It will mean a tremendous economy of labor and time and expense in the end. The task is inescapable; and the sooner done, the better.

In these simple fields it appears possible to determine scales of measurement, and to set up standards. Is it possible to make such determinations for all aspects of school work? It seems possible in the case of studies and exercises that involve objective activity or expression. Thus it appears possible in reading, drawing, translation of foreign languages, grammatical analysis of sentences, music, the various manual activities, sewing, woodwork, embroidery, printing, bookbinding, together with the entire field of physical development, strength, endurance, nutrition, vital capacity, weight, and height.

On the other hand, the teaching of science, history, and literature has such intangible aims as width of mental horizon, depth and fulness of appreciation, accuracy of judgment, and right social and moral attitudes. Here at first glance it appears impossible to set up definite scales of progress of a quantitative sort, in terms of which to state and to measure standards of attainment. In the case of each of these, however, it is possible to secure an objective expression of one sort or another. Usually in each case it is possible to secure a number of kinds of expression which may be used as bases for the formulation of scales of measurement in terms of which standards can be expressed. Since we are beginning naturally with the simpler matters, these more complicated ones lie some distance in the future and it is probable as technique develops and as we become familiar with the work these more intangible matters may present less difficulty when we reach them. It seems possible to determine scales of measurement and standards, both ultimate and progressive, with an accuracy sufficient for all practical directive and supervisory purposes for every desirable educational prod-

uct, whether tangible or intangible. We have standards at present, in fact, for every educational product. Our problem is simply the replacement of vague, indefinite estimation with more exact methods of measurement, and the substitution of definite standards of attainment for the uncertain, fluctuating ones now used. Since the scales and standards are here more difficult, these problems may well wait until we have developed technique and skill on lower, easier levels. After our profession has scaled the lower heights, it will be time enough to prepare to scale the higher.

The higher, however, must be scaled. However difficult it may seem to set up quantitative standards in the more intangible fields, it must of necessity be done, if once they are introduced into the lower more objective and more mechanical forms of training. It will work harm to establish definite standards for only a portion of the tasks of education, leaving the rest to the traditional vagueness and uncertainty of aim. In any school where accurate standards of mathematics, penmanship, composition, and spelling are established and enforced, but where all the rest of the work is left to the usual chance, teachers know that they can be and that they will be more definitely measured and judged in these standardized subjects than in anything else. The result is therefore, necessarily, overemphasis upon the simpler more mechanical subjects and relative neglect of the other and, on the whole, more important subjects. The work becomes mechanized not because of standards, but because standards have been established only in the mechanical aspects of the work. The things that are mechanical receive, under such conditions, more than their share of emphasis. This result is not, however, an argument against the presence of standards where they exist. It is rather an argument against the lack of standards in fields where they do not exist. The remedy is to establish equally definite standards in every field of educational labor. There can be no other remedy.

This very difficulty is one of the incontestable proofs of the relative superiority of the work with standards in stimulating teachers, supervisors, and pupils. The standardized matters get the time and the labor, and the unstandardized portions of the field are the ones neglected. But education must take care of all desirable aspects of human personality, training and developing each in due proportion, slighting nothing, neglecting nothing, giving unduly large or unduly small attention to nothing. Therefore if standards of attainment are set up in any part

of the educational field, they must of necessity be set up in all portions of the educational field. ✓

Efficient *methods* are dependent on definite standards. So long as definite standards are lacking, we cannot expect methods to grow efficient. One does not devise expert methods of hitting a mark, nor does he exert himself strenuously in the effort, until he has some mark to hit. So long as his task is a mere firing in the air, almost any method will do. But the moment a specific mark is set for him, he must discriminatingly discard everything useless or relatively ineffective and must equally discriminatingly choose methods that are relatively efficacious in securing the end in view.

We do not exert ourselves to discover effective methods without some such incentive, nor to adopt them even after they are discovered. The unfortunately more or less isolated experimentation in our universities has definitely proven in a number of cases that in a given subject one method is very superior to another method. Yet, in practical schoolroom procedure, the two methods can, throughout the country, be found side by side, with the majority seemingly unconcerned and making little effort to apply information that has definitely been proven. The dearth of investigative results in our universities is certainly in part owing to the apathy with which the results are received by the practical educational world. There is little incentive for producing a thing if there is no call for it. The apathy in the practical educational world is probably more than anything else due to a lack of definite standards. When we have a specific mark to aim at and are judged to have failed in our efforts if we do not hit that mark, an incentive will have been thrown into the educational world that will no less than revolutionize its attitude toward scientific procedure.

Who should test the results? It is probable that they should be tested by workers all along the line, some for one purpose, some for another, the efforts of each serving as a check and a corrective for the others. If the eighth-grade standard for speed in multiplication is 50 operations per minute, it ought to be possible for the pupil himself to test his speed ability whenever he likes to see if he has attained the standard that has been set for him. He has thus a check upon the tests made by the teacher, as well as a number of other desirable things. The teacher, certainly, should be able and should test her pupils in every thing in which she trains them. This is necessary in order that she know



whether she is securing the standard product, falling below, or going beyond what is expected of her. It is a check also upon the supervisory tests. Injustice cannot be done her by the latter tests, if she has a check upon it. The building principal will necessarily occasionally make tests upon the pupils in order to locate strong and weak teachers, or strong and weak teaching in any subject. He needs the tests also in order that he may compare his work with that of other buildings in the city, his tests serving as a check upon injustice being done him by higher supervisory tests from the office of the city superintendent.

Tests will also be made by representatives of the superintendent; over these, the building principal will have no control. It is an accepted principle in the business world that the department which inspects the product must be wholly independent of the department which is responsible for securing the product. It is possible that the greater probity of building principals and teachers over that of corresponding workers in a business organization will render this principle somewhat less necessary in the educational field. The superintendent can in larger measure accept the results of tests given by principals and by teachers. But as the results of these tests come to determine the efficiency mark of teachers and principals; as they come to determine the salaries of the workers, together with other immunities and privileges, it will probably be necessary to reinforce this probity by independent tests from the superintendent's office after the plan of the inspector's department in the business world. But a superintendent who wanted to make good with a discerning community might very well manipulate results so as to make them more favorable than conditions warrant. It appears, therefore, that those who set aside the school organization as their agent might very well have an inspectorial department for independent testing of the work of their institutional agent.

An objection that will be made to this basis of scientific direction and supervision is that the requirements in the way of continuous records for each pupil are so great as to make the task impracticable if not impossible. Speed in addition requires one record, accuracy another; speed in subtraction a third, accuracy a fourth; and so on through the various forms of computation. Quality of handwriting demands a record for itself; speed of writing demands another. Accuracy in the spelling of one large list of words must have an individual record; accuracy of spelling another list, a second record; a third list must have



a third record; and so on. This series of records needed seems to extend throughout the whole realm of education, there being one continuous record for each educational product. It looks as though it would require a small ledger for each individual pupil to record his progress in developing each of his various necessary abilities. It looks like a large problem. Are the educational products worthy of the labor of keeping track of them?

This keeping of a continuous record of the results of labor is a commonplace in the business world. There, for example, the record follows each lot of goods through the factory from the time the raw material is received to the time it is finally disposed of in the shape of a finished, inspected, standard product. The principle is religiously followed in all successful commercial and transportation establishments. The business world knows that it cannot afford to neglect this function. It involves an elaborate system of accounting, but the business world has proven that the extra labor and expense is economically justifiable many times over by the saving and economy in the handling of the product. It is an indispensable basis for efficient management, direction, and supervision. Business efficiency would be destroyed if it were dispensed with.

I am unable to see any reason why we have less need of such continuous records in the development of a hundred related intangible products, the labor covering ten or fifteen years, than does the business world in the handling of goods of a relatively simple nature which remain in their hands but a comparatively short time. Where the processes are complicated, and efficiency in the result difficult to determine, and where the process covers a long period of years, the necessity for a careful continuous record is much greater than in the other case. It is probable therefore that education requires an even more elaborate system of accounting than is required by a factory or a railroad. It is probable that with us, as with all other organizations, ample and accurate information is the only possible foundation for successful management. Although such records will require an increased amount of labor for somebody, yet there is no reason that I am able to see why every advantage that accrues to the business world from the careful keeping of continuous records, would not also accrue in equal measure or in even greater measure to the educational world. When 10 per cent increase of clerical labor means 100 per cent increased profit for an

organization, clearly the extra clerical labor required for efficient direction and control is altogether justifiable. We have every reason to think that increased results in education would equally justify the increased expenditure.

It must be remembered, however, that these continuous records cover a period of from ten to fifteen years. During a considerable portion of this period the pupil himself can do much of the labor. Moreover, in the training of clerical workers in our schools, the lack of live clerical work of a useful sort for giving them practice is one of the great deficiencies. This work might well eliminate a portion of this dearth of material. The saving in teaching labor required that is affected by the one matter of continuous records will perhaps be very much greater than the increased amount of labor necessary to make the records. Within a few years we can quote the quantitative results of actual experience, we hope, instead of being compelled in this humiliating fashion merely to make deductive applications of the principle to our field on the basis of the way it works among other organizations whose efficiency is so far in advance of that of our own.

A good deal of work is being done at the present time in the standardization of the various classes of educational costs. Although this is a bit beside our purpose, in this paper, yet it further illustrates the need of standards on the training side to serve as bases for standardizing costs in the field of physical administration. The method of drawing the deadly parallel between schools within the same city or between schools within different cities in the matter of the costs per pupil in each of the various items of educational expenditures is a long step forward. Of itself, even under present conditions, it means great improvements in methods of placing educational money, in economy, and in efficiency. Still it is but one step in the direction of effective procedure. As a matter of fact, there are so many factors entering into each of the items of expenditure as tabulated at present that it is practically impossible to make anything more than the most general sort of comparison. If we refer to Mr. Updegraff's study of *Expenses of City School Systems*, we find, for example, that among cities with a population of over 30,000, the cost per pupil of the salaries of teachers ranges from \$9 to \$36, the mean cost being about \$16 and the middle 50 per cent range being from \$14 to \$19. The presumption is that a city that finds its cost within this middle range can feel itself reasonably safe in its

standard of expenditures while those that exceed \$19 or fall below \$14 are expending either not enough or too much per capita. Now, as a matter of fact, if a school expends \$26 per pupil for teaching and secures twice the results obtained by a school expending \$15 per pupil, the expensive school is, in fact, the more economical of the two. And of two schools near each other in the middle zone of safety, one may be securing a high quantity of results, and another a low quantity. One may, in fact, be securing a product that is inferior to other schools more efficiently managed that lie altogether below the lower limit of the zone of safety. We cannot standardize teaching costs until we standardize teaching product. The school that secures the greatest amount of product for the money expended is the most economical school whether it lies above the zone of safety or below it in the matter of actual expenditures as shown in Mr. Updegraff's tables. The present rapid progress, therefore, which is being made in the field of educational financial accounting is, from its side, going to demand that the unit of product be defined in terms sufficiently accurate to permit comparative cost calculations between schools in the same city and between schools of different cities.

To summarize these matters: (1) As a foundation for all scientific direction and supervision of labor in the field of education, we need first to draw up in detail for each social or vocational class of students in our charge a list of all of the abilities and aspects of personality for the training of which the school is responsible. (2) Next we need to determine scales of measurement in terms of which these many different aspects of the personality can be measured. (3) We must determine the amount of training that is socially desirable for each of these different abilities and state these amounts in terms of the scales of measurement. (4) We must have progressive standards of attainment for each stage of advance in the normal development of each ability in question. When these four sets of things are at hand for each differentiated social or vocational class, then we shall have for the first time a scientific curriculum for education worthy of our present age of science.

In my opinion, the formulation and development of some such program, completed and corrected by the co-operative work of the many viewpoints to be found among progressive workers, constitutes the most practical single task at present before the field of education. It points to a goal of administrative efficiency as far above the present as scientific

management in the business world is above the primary state educational management. The greater service required is in the complexity of the problems, not the lack of technique, but rather the inability of school people to cooperate and the lack of a desire to co-operate. Owing to the nature of the training, the nature of the working process along the line, and the nature of the work to be performed, the school man is necessarily an individualist, and the intellectualist is by nature whatever the field of his work. An independent individualist, a man of wide vision and of large capacity for self-help and self-direction. By nature he is a leader of men. He desires nothing so much as to sink his personality into a co-operative task where he is not the leader or director. Impatient of restraint for himself, he is sympathetically impatient of restraint for his colleagues. Each educational worker desires therefore for himself and for all others in the field of education the greatest possible degree of individualistic freedom. The result is, in city school systems, in normal schools, and in our universities, the relative autonomy of a very large number of small units—in other words, a low and primitive form of organization, direction, and management. All this stands in the way of accomplishing any large co-operative task. It results in a constitutional tendency to place the welfare of the worker above the welfare of the organization, and the welfare of both above the welfare of the total society of which school men and school institutions are but agents.

The program of work herein described, however, appears to be a co-operative task that will require the efforts of thousands of workers in the field, elementary, secondary, normal school, collegiate, and university. It is a task that will require some sacrifice, some setting of social service above personal or professional self-interest. Its accomplishment is inevitable; the major obstacle mentioned can only make delay. The ideal of social service is rapidly becoming the corner-stone of faith in every department of human affairs—in none certainly more than in the field of education. In this service, "social efficiency" is becoming the chief watchword and the chief aim. No servitor is so faithful or so efficient as the independent intellectualist who has come to see that for all men, for his class among the rest, there is opportunity in organized and co-operative effort for a larger life and a larger reward than is possible in a state of primitive, inchoate, intellectual individualism. In our field, many such men are now ready, and the time is ripe.

## III. METHODS

*Principle III.—Scientific management finds the methods of procedure which are most efficient for actual service under actual conditions, and secures their use on the part of the workers.*

Until very recently within any field of co-operative endeavor, the management felt that it had absolved at least most of its responsibility when it had assigned the various portions of the work to the various workers and had placed incentives before them to stimulate them to proper effort. Practically all initiative in the way of methods of work was left to the workers themselves. In the performance of any given task, the worker was left mostly to "trial and error," as he groped after the best way of doing the thing. The result was that in the performance of any given task one worker employed one method, another worker at his side employed a different one. Mr. Taylor tells us that in a machine shop of twenty-five years ago employing five hundred workmen, it was possible to find several score different methods used in the performance of any piece of the work. The foreman was but a promoted workman whose information was empirical like that of the rest of the men, and did not in fact exceed the information of the more experienced and best workmen of the group under him. They were about as competent to find methods as he. He confined himself therefore to assigning their work and managing the incentives. The accumulations of traditional knowledge had naturally weeded out the very poorest methods. But of those employed, some were many times more efficient in securing a product than others. But the foreman was not in a position to undertake the direction of the methods employed.

Machine-shop work has now been raised to a far higher plane where the output by the same workmen using for the most part the same machinery is now from three to ten times as large as that formerly produced, and this without laying greater burdens upon the men. The change has been brought about mostly by undertaking the control of methods. Steel-cutting industries have developed a science which controls the processes. On the basis of this science, scientific methods have been formulated and the management no longer confines itself to assigning the tasks and controlling incentives; it also definitely undertakes full control of the methods employed. This is the secret of the startling transformations in industry that are at present being brought about by the much-heralded scientific management.

In the educational world, we are at present in the stage represented by the machine-shops of twenty-five years ago. The supervisory staff distributes the various tasks of education to the various teachers, and tries in every proper way to stimulate teachers to effective effort. In the matter of method the workers are expected for the most part to take the initiative and find the methods for themselves. This freedom to grope in "trial-and-error" fashion is even considered a right of the teacher not to be taken away by the supervisory staff. The result is that in a school system employing a hundred sixth-grade teachers, let us say, we can find a great variety of methods of doing each sixth-grade task. Two years ago, Mr. Marker took the courses of study used in about a hundred of our largest American cities with a view to ascertaining the consensus of opinion as to the best methods of teaching the English language in the elementary schools, in the various grades from the third to the eighth. After tabulating the tasks performed, the time given, the materials used, the methods employed, he discovered that among the teachers in our leading American cities, every sort of thing is being done, in every sort of way, using every kind of materials at every stage of the course, with as large an amount of variation in the time allotted to the different elements as it would be possible to have. The study gave little information as to what to teach, what to use in teaching it, how to teach it, when to teach it, how long to teach it, or how to distribute the time. Conflicting opinions neutralized each other. His results presented a vivid picture of a vast "trial-and-error" experimentation and confusion covering the entire country. And this is in the field of work that is considered most important, since to it we give most time in the elementary schools.

The new and revolutionary doctrine of scientific management states in no uncertain terms that the management, the supervisory staff, has the largest share of the work in the determination of proper methods. The burden of finding the best methods is too large and too complicated to be laid on the shoulders of the teachers. The task of turning out the fullest possible product is so large that there must be division of labor. The teacher must perform his share of the work, but the supervisor must also perform his proper share. Each must be a specialist; each must cover a different portion of the task. Under scientific management, the supervisory staff, whose primary duty is direction and guidance, must therefore specialize in those matters that have most to do

with direction and guidance, namely, the science relating to the processes. The ultimate worker, the teacher in our case, must be a specialist in the performance of the labor that will produce the product. One specializes in *science*, the other in *practice*.

This does not mean such narrow specialization of the special field that neither knows much of the work of the other. As a matter of fact, the teacher must have a large understanding of the science of his work, in so far as this is understood by the supervisors, in order that he may understand their instructions, and in order that he may rationally adjust his portion of the work to the total work of the organization. On the other hand, those who guide and direct must understand the details of practice through having done the work before they can so much as understand the science in which they specialize. The educational specialist must certainly not be a narrow specialist. He must be as general in his ability as it is possible for one to be. But the tasks are so large, the ramifications are so numerous and so intricately entangled one with another, that we must specialize our work in order to bring our labors within the bounds of human possibility.

The primary functions of educational directors and supervisors, as relating to methods, are therefore: first, the discovery of the best methods of procedure in the performance of any particular educational task; and second, the giving of these discovered best methods over to the teachers for their guidance in securing a maximum product. Since so few methods, demonstrably the best, have yet been discovered with entire certainty, it is impossible yet to devote any very large amount of time to the function of distribution of this information to the teachers. This leaves the major work at the present moment in the realm of discovery of best methods, it would appear.

Schools must not experiment on the children? As a matter of fact, they are not doing much else at the present moment. Mr. Marker's study showed that they are experimenting in the teaching of the English language in almost every conceivable fashion through the country. "Trial and error" is itself nothing but blind experimentation. We can be reasonably sure that it is in the wrong direction about half the time and in the right direction about half the time. Work that looks in all directions will distribute itself in about this fashion. Rational experimentation under the guidance of the best educational light at our command cannot possibly go wrong more than half the time; and there-



fore cannot possibly be worse than the present mode of experimentation. The chances are very great that it can change the balance very considerably so that it will look in the right direction much more than 50 per cent of the time and in the wrong direction much less than 50 per cent of the time. There is no bottom to the argument that schools must not experiment.

As a matter of fact, however, there is not at the present moment any great need of setting new experiments on foot. There are already so many going on. If 50 per cent of these random experiments going on at the present time look in the right direction and 50 per cent look in the wrong direction, the immediate problem is a statistical comparison of the relative amount of results that is obtained from these various practical experiments. For guidance in the performance of this task, scales of measurement are largely lacking; but these will be at hand the moment there is a practical demand for them. The chief supervisory task of the present moment relating to methods is to take these scales of measurement and the forms of statistical organization and to measure the relative efficacy of the different methods used. While scales of measurement at the present time in many fields cannot be sufficiently delicate for finding the one absolutely best method, still scales such as we have and such as we can develop immediately are sufficiently delicate, it would appear, for measurements that can fairly definitely locate the 50 per cent of experimentation that looks in the wrong direction. If it can perform no more than this, it alone would mean tremendous progress in the ability to supervise the workers. Supervisors could say definitely that certain methods could not be used under any circumstances and that the range of experimentation must be confined to the group that is shown to be the more superior.

Let us illustrate with a concrete example or two. Suppose among schools that give sixty minutes per week to drill in penmanship, it is found that one group of schools distributes the time into thirty-minute periods twice a week; another group of schools has twenty-minute periods three times a week; another group distributes the time into twelve-minute periods of drill five times a week; a fourth group distributes the time into six-minute periods ten times a week, or a short period twice each day. Now suppose each of these groups of schools to be measured in the first week of the school year by the Thorndike or the Ayres writing scale as to quality, and tested by the stop-watch



as to speed. If they are then measured again at the end of the year in the same way, it is possible to determine which of the modes of distributing the sixty minutes of time for teaching the writing is the superior. Groups can be large enough to neutralize disturbing factors. If the six- and twelve-minute distribution secures larger results than the twenty- and thirty-minute distribution, then this factor of method in teaching handwriting is partially solved. While we have not definitely established just which length of period is best for the work, yet we have definitely shut out the longer periods of twenty and thirty minutes and we must definitely limit the length of drill period to a possible maximum of fifteen minutes. More delicate, more discriminating comparisons will have to be made before we can decide just where between the five- and the fifteen-minute period we would best fix the drill time in order best to distribute sixty minutes of drill so as to secure the maximum product. But if the supervisory staff has only the rough determination as the result of its comparative studies, it is prepared to give something over to the workers that is definite, authoritative, and usable, and a thing which the workers could not determine for themselves. The supervision under the circumstances is able to do a portion of its share in the labor of securing the product. It furnishes the demonstrably rational guidance for the worker which the latter could not secure for himself. Each supplements and assists the other in securing the product, the ultimate end of the labor of both.

The distribution of time into periods best for one grade may not be the distribution that is best for other grades. The same kind of comparative problems have to be worked out for each of the successive grades from the beginning of the teaching of this subject up to the time when the class reaches the ultimate standards set for them. The problem as stated above is how to distribute sixty minutes of drill. Another series of problems is the determination of the total amount of drill per week, whether it should be twenty minutes, forty minutes, sixty minutes, or one hundred minutes per week; and this again in connection with each of the different grades in which writing is to be given. The amount of time used and its best distribution offers therefore a very large number of problems to the directing and supervising staff in education for solution by comparative methods. This probably can be done without setting into operation any experiments in addition to those already going on.

The time employed in drill is but one of a number of factors of method. Other factors of method are: the series of drill exercises used, the distribution of time among the different kinds of drill exercises, the speed of the practice, the kinds of materials used in the practice, the different systems of arm-and-finger movements employed, sitting position, the slope of the desk, the nature of the copies presented, the time of day, the fatigue factor, the length of time elapsing after active physical exercise, the motives and incentives employed in stimulating the pupils, and the writing specialist will probably add a few other factors. In connection with each of these factors it is possible to determine by means of statistical comparisons of scale measurements the better and the poorer method of controlling each of these various factors for each of the various school grades. The problems of writing present therefore several score problems that will have to be worked out by co-operative and comparative study of the present situation before supervisors can adequately perform their share of the task in directing and supervising handwriting. If the determination of the better and the poorer modes of controlling each of these factors would result in the case of each one of them in an improved efficiency of one-half of one per cent only in each of the grades, the combined improvement would mean a doubling of our efficiency in the teaching of penmanship, or in other words the elimination of 50 per cent of waste, the release of 50 per cent of the teacher's time for other tasks.

It is clear that supervisors cannot perform their half of the task, that of guidance, on the basis of science, until they have the science on the basis of which to guide. In the past the supervisor has usually been one of the most successful and most experienced of the teachers, promoted on the basis of his relative standing. In the matter of empirical information he is superior to the younger, less experienced, less capable teachers, and is able out of his more successful experience and his observation to give them a quantity of good advice and instruction as to methods to employ. But in the case of experienced teachers, those moderately successful and those highly successful, the degree of difference between the teacher and the supervisor is so slight that the latter is unable to perform any large portion of the labor of securing the educational product. In connection with those who are best able to use his help, he can give little or no help in the way of methods. He is but a specialist of their own type, and

not a specialist of a supplemental type. He is compelled to give his better teachers almost complete freedom in the way of methods used. This tends to paralyze his efforts toward using his authority in the direction of methods even in the case of the younger and weaker teachers. The situation creates a system of privileges and immunities claimed by all the teachers in the matter of freedom to go wrong as much as they please in the selection of their methods.

When the conscientious, hard-working supervisor earnestly desires to perform his share of the task in connection with his strong teachers—under ideal conditions all are strong teachers—he finds himself unable to do so because of the almost total dearth of scientifically formulated information as to what constitutes the best control of the various factors of method. He has opinions; other men of equal ability have neutralizing opinions. This leads him to a distrust of his own opinions. When he turns to the literature of his profession for guidance, he finds more opinions, and then in a second book still other opinions which tend to neutralize those of the first book. From opinions based upon “trial-and-error” practice, he has merely turned to opinions based upon “trial-and-error” theorizing, and has not improved his situation.

For such men—and they grow more numerous day by day as we see how the rest of the world is forging ahead of us in the application of science—there is but one avenue of escape from the present condition of relative helplessness in the ability actually to direct and to supervise methods. This is the definite measuring of practical methods as they are actually employed at present.

It may be urged that the well-informed supervisor has at his command certain general principles of education that, like the fixed stars in the case of the mariner, can be used for guidance in the details of educational procedure. On the basis of these general principles it is possible to deductively determine the processes to employ in the details of teaching. His work of guidance is to see that the teacher is at all times fully alive to the nature of these guiding principles, and that she employs them in the formulation of her methods, and always measures her methods after they are formulated up against these general principles to see that the methods are correct. The weak teacher is the one who has not a command over these various general principles sufficient to make the various necessary deductions in the case of any specific situation. The supervising problem, in such a case, so far as methods go,

is to bring about a further realization of the principles in the teacher's mind and to help the teacher to the power to use the principles with certainty in devising the various daily tasks. In judging the work of teachers, weak or strong, the plan to be pursued on the part of the supervisor is to see how exactly the processes obey the general principles.

This sounds well, to be sure, and it was possible for the older school of writers on supervision to expand it into an entire volume. One does not know, however, what poor help these so-called principles furnish until one tries to apply them to concrete tasks. Suppose one gathers together all of the general educational principles that he can find, and on the basis of these principles tries deductively to determine answers to the problems of method presented by the teaching of handwriting as stated above. How many can he deductively solve with his principles?

From the general educational principles which govern in arithmetic the teaching of addition, to take another example, what are the most effective methods to use? Let us suppose for purposes of illustration that for a given class of boys the ultimate standard for speed in addition that has been set is 80 combinations a minute to be reached at the age of eighteen when these boys leave their vocational training. Now in the light of the general principles, at what age shall the 45 addition combinations be taught? What total amount of time per week is to be devoted to addition drill during the year when they are taught? What total amount of drill is to be given during the second year thereafter, the third year, the fourth year, and so on up to the time when the ultimate standard is satisfactorily attained? What shall be the distribution of the weekly drill time into periods for the first year of the work, second year, third year, fourth year, and so on through the series of years? What are the addition combinations that require much drill, what are the ones that require a medium amount of drill, and what are the ones that require but little drill? What time of day is best for the work? Should the drill be oral or written, or should there be a combination of the two? Is it best performed with abstract examples, or in connection with concrete problems? Shall drill exercises be furnished by the book, by the blackboard, or by teachers' dictation? Should the drill consist of many short exercises or fewer longer exercises? What is the effect of using the incentive of emulation in the economical securing of the product? What is the value of using exercises that involve the vocational motive or the civic motive?

Now, as a matter of fact, do we have scientific principles of education of a general sort on the basis of which these questions can be deductively answered with scientific certainty—such certainty as the farmer can use in the scientific control of his operations, or with the scientific certainty that the steel-cutting machinist can use in his operations? It is evident that our so-called principles will not serve our purpose in answering these questions. The principles are too vague, too general, too empty of content. A good many of them are probably pseudo-principles, speculatively, not scientifically, determined. They offer a form of support which the intelligent supervisor, in an age of applied science, uses with many misgivings. Since addition is almost the simplest task to be performed by education, if the principles will not guide here it would be strange if they were a safe guide in the more complicated portions of the work. Analogous problems are presented by every educational task, the more complicated ones presenting many additional factors.

The business world shows us how to proceed more nearly than any illustration that I can take from the educational field. The Harri-man railroad system, embracing about 19,000 miles of railway lines and employing about 80,000 men is divided into some thirty relatively autonomous divisions. Over each of these divisions is placed a general manager having his own exclusive expert staff. In the central office in Chicago is the Director of Maintenance and Operation of the entire system, also with his expert staff. In the original organization, in the performance of any given task, each general manager with his expert staff was permitted entire freedom of initiative in the determination of the methods to be employed. The expert workers in the Chicago office did not interfere in any way with the methods employed in the different divisions. This central body confined its efforts solely to careful scientific studies of the relative efficacy of the different methods employed in performing any given task in the different divisions of the system. When their studies showed clearly and unmistakably that certain methods were producing distinctly better results in certain divisions than other methods were producing in other divisions, then the group of better methods was definitely prescribed for the use of all of the divisions; and the group of methods clearly inferior was discarded and forbidden to any of the divisions. After this step was made, the process continued. From the better group of methods, one division

chose one form, and another division chose another, and the practical experimentation continued. The purpose of doing the work in each division was not to experiment; it was to get results. It was, however, experimentation under perfectly normal conditions of experiment. It was natural, not artificial, experimentation. The central office in Chicago, continuing its careful studies of the relative efficacy of the various methods of this better group, after a time was able to say definitely that certain of those methods were superior to certain others. This led to a still further discarding of inferior methods and the still narrower limitation of the experimental efforts of different divisions.

This process leads to a gradual narrowing of the variety of possible methods to use in connection with each of the various tasks of railroad management. It means a more and more intensive study of the specific factors that enter into the few or even the single method that has shown itself distinctly superior to the others. But perfection in so complicated a field is not possible. There is always room for further study of one factor or another in the performance of any task, it would appear. This method of finding the best modes of procedure definitely closes the door to experimentation along lines that are clearly proven inferior. It consciously leaves the door open as wide as possible for every kind of experimentation that looks toward further advance. It standardizes methods by cutting off the avenues downward but does not cut off the avenues upward. In promulgating standard methods, it says to the various divisions: "The use of methods that have been proven inferior to these standardized ones is hereafter forbidden. You are, however, encouraged and will be rewarded for taking the range of methods to which efforts are now limited and perfecting them still further." The result has been that the Harriman railroad lines have presented to us the highest example of efficient railroad management on a large scale.

This example shows a plan of work that may well be adopted in modified form for the determination of educational methods. The expert staff in the central office of our large city systems could at the present time perform no higher task than this analysis of the relative efficacy of methods that are being employed in the different schools of the city. Some of our leading cities have definitely undertaken this task in simple fashion. The expert staffs in the offices of the state superintendents can, when they so desire, undertake the work in connec-

tion with all of the schools of the states. All this naturally would appear to be a wasteful duplication of effort unless there was some method of co-ordinating efforts, and a dividing-up of the problems. The strategic position of our national Bureau of Education with its expert staff is clearly evident. It is a bureau the possibilities of which need to be discovered by those so much in need of its labors.

Does not responsibility for investigation rest upon the universities, while only responsibility for "practical" work rests upon those in the field? Scientific management refuses to admit this. Responsibility for finding the best methods rests upon those who are responsible for directing the work. The railroad lines described do not depend upon the universities for devising methods for them, and they could not. Only the railroads have the things to be compared on the basis of which determinations can be made. In education it is only the school systems that have the practical experimentation going on, on the basis of which the necessary determinations can be made and poor methods separated from the good. The relative isolation of the university stands in the way of its being able alone to accomplish very much. If in a city or state, however, where a university is located, the university departments of education became, co-operatively at least—there need be no official bonds of connection—a portion of the expert staff engaged in the direction, supervision, and investigation of education in that city or state, the university might accomplish an enormous amount of work for the school systems concerned and at the same time perform its own function in the way of educational training of prospective teachers with greatly augmented efficiency. The isolation of the two forms of organization is, in fact, disastrous to the efficiency of both. Universities are rapidly becoming willing and ready to enter into such co-operative work. The same readiness and willingness is becoming equally evident within our progressive public education systems. It is time to get together.

From some of the preceding sections, it can be observed that the various problems to be attacked are bewilderingly numerous. In this connection, however, one must note that the number of workers is also very great. We have 1,241 superintendents of cities of 5,000 population and over. We have a still larger number of county superintendents; a yet larger number of building principals and supervisors of various sorts; 48 state departments; 581 colleges and universities,



in the majority of which education is given some attention, and in many very large attention; 288 public and private normal schools; and the rapidly expanding United States Bureau of Education. Engaged in co-operative work, with specialization and division of problems and a central bureau of publicity, an incalculable progress is easily possible.

An association of German brewers in 1862 adopted the following declaration as the corner-stone of their faith and of their practice: "Science is the golden guide-star of practice. Without it there is nothing but a blind groping in the unbounded realm of possibilities." In commenting upon this utterance, a leading metropolitan newspaper of our day has to say:

"The wisdom of that utterance of German brewers is the key to all the miracles of German progress. The German genius did not scorn that exact knowledge and systematic method which is science. It made it its golden guide-star. It did not dismiss the professor as an amiable theorist living in a remote realm of his own, useless in practical affairs. The German genius honored science, not academically but actually, and, honoring, sought its service. This wisdom science has repaid richly—and always will repay."

It is equally important that science be put in control of the processes that shape the elements of human character.

#### IV. QUALIFICATIONS OF TEACHERS

*Principle IV.—Standard qualifications must be determined for the workers.*

The determination of more or less definite qualifications for the various aspects of the teaching personality is necessary for the efficient performance of a number of other labors: the setting-up of the requirements to be met before entrance into the profession; the laying-out of courses of training for teachers previous to their service; selecting the elements of training necessary for each group of teachers during service; appointments; promotions; reductions in rank; transfers of teachers from one line of work to another; the vocational guidance and placement of teachers previous to and during their service; the retirement of teachers; the measurement of the individual teacher in each aspect of the teaching personality; the determination of the teacher's total ability; the comparison of the relative abilities of different teachers; with perhaps a number of others equally important.



Different types of work call for different types of workers. A policeman should be large and strong, while a jockey should be light and agile. A stoker, or a ditch-digger, under present conditions, would better be of sluggish mentality; whereas a lawyer or a banker requires keen and ever-alert intelligence. The primary teacher should perhaps be one who is by nature most interested in concrete realities and motor activities, whereas the teacher of relatively mature individuals should be one whose primary interests lie in the larger and more abstract relations, one who is by nature of wide intellectual vision. The nature of the work and the methods to be employed point out the qualities of personality that should be possessed by the worker.

The conscious development and application of this principle of management is to be found most clearly exemplified in the business world and in the sporting world; in less clear fashion, it is employed in the civil service, in army and police circles, and in the professions, among which our own in the conscious use of the principle presents a good example. The business world, however, furnishes us with one of the best examples for our purposes. Some years ago when the bicycle industry was at its height, Mr. Taylor, the efficiency engineer, was called upon to reorganize a large bicycle factory and to make it as efficient as was possible. His first step was what he called the scientific selection of the workers.

Among the various types of workers, there was, for example, a group of 120 girls engaged in the task of inspecting the small steel balls used in the bearings. The method employed by the girls was to let a stream of balls run slowly along the back of the hand between two fingers, examining them through a hand-lens held in the other hand, and picking out and discarding all of the balls that were firecracked, dented, or otherwise defective. The work required clear vision, quickness and deftness of movement, and long-continued mental concentration. Evidently the girl whose vision was defective, whose movements were slow or badly co-ordinated, or who was unable to bear the strain of continued mental concentration without undue and chronic fatigue was unadapted for the work. The girls had been taken just as they came when there happened to be a vacancy without any consideration as to whether they were by nature adapted or unadapted to the work.

Mr. Taylor began his task by setting up within the factory a psychological laboratory, and studying the native aptitudes and qualities of the girls. The "perception-time" and "reaction-time" of each of the girls was carefully tested. Those of slow perception and reaction were transferred to other labors

in the factory, or discharged; and only those were retained who were quick both in perception and reaction. Laboratory tests were then made of fatigue due to mental concentration; and those who were unable to bear the strain of such work were removed, and only those whose nature made mental concentration relatively easy were retained. Tests of visual acuity, weeding out those of poor vision, came in connection with the reaction-time experiments.

After this scientific selection of the workers was accomplished, together with certain other administrative matters, such as cutting down the length of the day from ten and a half hours to eight and a half hours, the giving of four rest periods in addition to the noon hour, which cut the day down considerably further, and otherwise looking after the health of the girls, also the scientific determination of right standards of performance and the standardization of the best methods of work; the result was that thirty-five girls did the work that formerly had been done by the entire one hundred and twenty, and they did it with 60 per cent greater accuracy. The result was gain on every side. For the girls, their wages were doubled, their time for leisure occupations very much extended, and their health improved; for the management, there was a saving of 50 per cent of the original cost; for the benefit of the general public, there were lower costs on the one hand and the release of eighty-five of the workers to be employed in other lines of production, thus greatly increasing the total product of the girls. The illustration shows in the most unmistakable manner the possible benefits to all of putting the right workers into the right place and devising scientific methods of direction, of supervision, and of work.

The common expression that "teachers are born, not made" indicates a very general recognition that there are certain types of personality that are well adapted for the work of teaching while there are other types of personality that are ill adapted for this work. Now, what in exact terms are the native personal attributes of such an individual? The problem is not so simple as the one of the factory girls; still our psychology is not quite so halting as to be unable to perform the task. The psychologists have the technique with which to solve the problem. Their task appears to be first to locate a fairly large sample of the best 5 per cent of teachers in the profession, those who in their original nature most probably possess the native elements, rightly proportioned, of the so-called "born teacher." The second task is to analyze out and to define in reasonably definite terms the characteristics of personality which this group of teachers exhibits. Since teachers are specialists in various ways, such determinations are needed for each of the various special groups. With such a schedule of native qualities in hand, the directors of education are in a position to select rationally those best

fitted by nature for any given department of teaching. Such individuals will take the necessary training easily, both the preliminary training before service and the continuous training during service. With this indispensable foundation for vocational guidance, the supervisors will not have to expend the major portion of their energies in the distressing and exhausting labors of directing and supervising teachers who ought never to have got into the service, or who ought to have been placed in some other department of it.

It is necessary for the higher levels of supervision that the work of the building principal be predetermined as completely as that of the teacher. This is impossible unless we predetermine the amount of supervisory help that will have to be given by knowing in reasonably accurate terms the character of the teachers admitted into service under any given principal, both on the side of native qualities and aptitudes, and the acquired qualities of training. This cannot be known without scales and standards of measurement in terms of which to state the ability of the teachers of any given building.

In its general outlines, this principle is fully accepted in the educational world. Scholarship must rise to certain levels as shown by academic training received in certain subjects and courses, and by prescribed examinations in certain subjects. Physical examinations are commonly required in our progressive city systems; and also a number of social qualities of a much less defined sort are required in fact, though not usually stated in the list of requirements.

The more definite standards of qualifications are set up in the realm of acquired qualities. While both native and acquired qualities are indispensable, yet the native ones are primordial, and certainly are the ones first to be taken care of. When this is done, when individuals of right qualities are selected, the largest factor of the training process is, in fact, cared for. They take training easily. In the case of those whose natural native qualities are not rightly proportioned, not all the training possible can make good teachers of them; training can only bring out the latencies.

The tendency at present among certification and rating systems is to emphasize more and more those native qualities. The burden of responsibility for rational vocational guidance into all fields of human labor is rapidly being laid on our schools—where it belongs. The first field of its performance on the part of the educational profession, might well be

the devising of a reasonably complete system of rational vocational guidance for those who enter our own profession and for those who are to be moved along the ranks during service. Certainly the first step is to devise the complete schedules of desirable native qualities. The tendency to include such qualities is well illustrated by the method of certification in the state of Indiana, for example. In this state, in certifying a teacher who has previously taught, he is given a "success grade" which is of equal weight with the mark received upon examination in determining the teacher's standing. The "success grade" deals in part with the qualities conferred by training; it is also in very large measure a judgment as to the native qualities of personality possessed by the teacher. A detailed score-card is furnished on the basis of which the success grade is given. The following is the schedule of qualities considered desirable and their relative weights:

<b>The Teacher</b> .....	<b>100 per cent</b>
<b>A. Personality</b> .....	<b>20 per cent</b>
1. Physical: health, habits, industry, ability to do things, cleanliness, neatness of attire.	
2. Mental: moral worth, habits, disposition, temperament, individuality, power of initiative, self-control, sarcasm, sincerity of purpose, attitude toward children, ability to meet people.	
<b>B. As a student</b> .....	<b>15 per cent</b>
1. Lines of study pursued.	
2. Lectures attended.	
3. Vacation schools attended.	
<b>C. Professional development</b> .....	<b>15 per cent</b>
1. Problems of teaching studied.	
2. Work in township institutes or teachers' meetings in cities and towns.	
a) Preparation.	
b) Presentation.	
3. Attitude toward educational meetings.	
a) Attendance.	
b) Participation.	
4. Lectures attended.	
5. Vacation schools attended.	

- D. As an instructor . . . . . 20 per cent**
1. Preparation.
    - a) Before coming to class.
    - b) Assignments.
    - c) Skill in bringing the pupils into the right conscious attitude for the new truth to be presented.
  2. Presentation.
    - a) Knowledge of the mind of the pupil.
    - b) Knowledge of the matter to be presented.
    - c) Knowledge of ways of presentation.
    - d) Skill in presentation.
  3. Comparison of interpretation based on children's experiences.
    - a) Skill in keeping the minds of all the pupils centered on the new truth being presented, and upon their own experience that will help them interpret at the same time.
  4. Generalization.
    - a) Skill in leading pupils to draw correct conclusions and to state them well.
  5. Application.
    - a) Skill in making pupils realize the new truth as their own. Ability in leading pupils to discover that school problems are life problems.
- E. Government . . . . . 15 per cent**
1. Two ways.
    - a) Through the conscious use of rewards and punishment.
    - b) Through the inspiration of personality.
  2. Two types of order.
    - a) Constrained, unnatural and dead.
    - b) Free, natural and alive with the busy hum of industry that accompanies the understanding that each pupil is to do his work without disturbing his neighbors.
- F. Community Interest . . . . . 15 per cent**
1. As illustrated by—
    - a) Ability to keep pupils from withdrawing from school.
    - b) Ability to secure regularity in attendance.
  2. As illustrated by—
    - a) Ability to send common-school graduates to high school.
    - b) Ability to send high-school graduates to higher institutions.

3. As illustrated by—
- a) Care of school property, keeping records, and making reports.
  - b) Sanitary conditions, decorations, and neatness.
  - c) Ability to establish libraries and young people's reading circles.
  - d) Co-operation with teachers, supervisors, and school officials in school plans, exhibits, and meetings.
  - e) Part taken in the plans and affairs of the community.<sup>2</sup>

Professor Edward C. Elliot presented to the second annual state convention of city superintendents, held at Madison in 1910, the following outlines of "A Tentative Scheme for the Measurement of Teaching Efficiency":

TOTAL TEACHING EFFICIENCY.....		100 points
I. PHYSICAL EFFICIENCY—12 points.....		(12)
1. Impressions—general.....		2
2. Health—general.....		2
3. Voice.....		2
4. Habits—personal.....		2
5. Energy.....		2
6. Endurance.....		2
II. MORAL—NATIVE EFFICIENCY—14 points.....		(14)
1. Self-control.....		2
2. Optimism—enthusiasm.....		2
3. Sympathy—tact.....		2
4. Industry—earnestness.....		2
5. Adaptability.....		2
6. Sense of humor.....		2
7. Judicial mindedness.....		2
III. ADMINISTRATIVE EFFICIENCY—10 points.....		(10)
1. Initiative.....		2
2. Promptness and accuracy.....		2
3. Executive capacity.....		2
4. Economy (time, property).....		2
5. Co-operation (associates and superiors).....		2
IV. DYNAMIC EFFICIENCY—24 points.....		(24)
1. Preparation.....		4
Including:		
a) Intellectual capacity.		
b) Academic education.		
c) Professional training.		

<sup>2</sup> *Report of the Superintendent of Public Instruction of Indiana, 1908, pp. 632-33.*

2. Professional attitudes and interest . . . . .	2
3. Human nature attitudes and interest (Appreciation of values—intellectual, social, and moral, in child life) . . . . .	2
4. Instructional skill . . . . .	12
Including:	
a) Attention and interest of pupils.	
b) Formality v. vitality of instruction.	
c) Motor v. verbal methods.	
d) Application of the technique of teaching; organization and presentation of subject-matter; the recitation as artistic product.	
e) Application of the technique of living; par- ticipation and contribution of pupils; the recitation as a democratic activity.	
f) The tools and machinery of instruction; effec- tive adaptation.	
g) Assignment of work.	
5. Governmental and directive skill (discipline) . . . . .	4
V. PROJECTED EFFICIENCY—6 points . . . . .	(6)
1. Continuing preparation . . . . .	2
a) Daily; b) Weekly; c) Annual.	
2. The school program . . . . .	2
3. Increase of professional equipment (professional reading and study; travel) . . . . .	2
VI. ACHIEVED EFFICIENCY—24 points . . . . .	(24)
1. Achievement.	
a) Illustrative results . . . . .	8
b) Examinations; success and attainments of pupils	12
2. Stimulation of individuals and community . . . . .	4
VII. SOCIAL EFFICIENCY—10 points . . . . .	(10)
1. Intra-mural interests . . . . .	2
2. Extra-mural interests	
a) Cultural and ethical . . . . .	2
b) Civic . . . . .	2
c) School—patrons . . . . .	4

These two schedules indicate a practical belief in the possibility of drawing up definite plans and specifications which exhibit the elements and proportions of personality that are necessary for the fully equipped teacher. Except in matters relating to scholarship, however, the standards of judgment are yet rather indefinite; and they are as numer-

ous as individual supervisors making judgment. In the case of the factory girls, to recur to our parallel example, anybody could know on empirical grounds that quickness of movement was a necessary quality of the worker; and the observant foreman could tell in an uncertain sort of way who was quick and who was slow. His judgment, however, was necessarily uncertain, frequently mistaken, and always quantitatively indefinite. And this uncertainty was paralyzing to effort. It seemed preferable to make no selection on the basis of native quickness, because of the frequency of mistakes, the consequent injustice to individuals, and consequent demoralization of the entire corps of workers. Scientific laboratory measurements, however, completely changed the situation. Empirical vagueness and uncertainty gave place to absolute certainty. It was possible in the case of any particular girl to say without any shadow of doubt whether she belonged to the rapid class, the class of medium speed, or the slow class. Then, when the supervisor could act with certainty, when the workers could understand the reasons for the action and could know positively that there was no injustice being done and no possibility of injustice, all mischievous inhibitions were removed. It was possible instantly to transfer any worker who was in the wrong place. It could be accomplished with benefit to all and with injury to none.

Now, in the educational field, in using the schedules given above, we are yet, with the exception of the academic subject-matter, in the empirical stage of indefinite, uncertain estimation of the matters involved. Our profession must advance along the same road as that already traversed by the best of the industrial world before we shall be able to place our workers with the same efficiency, justice, and certainty.

For the schedule of acquired qualifications, the fixing of standards of scholarship in the subject-matter of academic courses is a relatively easy task, one already so well understood as to require no discussion here. Not so easy to handle, however, are many of the other non-academic but no less necessary acquisitions. As a matter of fact, the so-called "born teacher" is not born full-grown. Every desirable native quality must be developed and trained. Each latency must be awakened into the necessary actuality. Rightly proportioned ability in each of the characteristics in the list given above requires training just as definitely and as imperatively as ability in the field of academic subject-matter. In the one class as in the other, right unfoldment of latencies can be



accomplished only with right training, and in most cases with much training.

In a previous section, we noted the one-sidedness that inevitably occurs in setting up relatively exact quantitative standards in some portions of a field of work to the neglect of such standards in other portions of the field. Now the same thing undoubtedly occurs in the case of the training, certification, rating, and placement of teachers. To standardize in relatively accurate terms the requirements for academic subject-matter and not to standardize other just as necessary aspects of personality, aspects in fact more difficult to secure, is to bring about a one-sidedness in the training and the character of the teacher, in ways so obvious as to require no statement here. The world calls the teacher a one-sided creature, and the one-sidedness of which we are accused is of exactly the type to be expected from these quantitatively definite requirements for certain aspects of personality and the neglect of such requirements for the more general human and social aspects. Now to bring about all-sidedness in desirable proportions, it appears to be altogether necessary to have a schedule that is all-sidedly definite. Vagueness of requirement always means neglect. Requirements that are always met are definite ones.

In the first paragraph of this chapter we enumerated a list of the supervisory values of such definite schedules of qualifications. We have space for only brief discussion of a few of these. One of the large problems of the supervisor is the treatment of weak teachers. Teachers are weak, however, in different ways; and one must locate the exact weakness before effective treatment can be administered. One teacher is weak in academic qualifications in the field of subject-matter; another in her academic understanding of standards, methods, and teaching processes; another has a very limited mental horizon, and does not see the elements of her work in academic perspective; another has no proper social horizon, and fails to see the elements of her work in their social relations and uses, actual and prospective; another is lacking in energy, endurance, physical buoyancy, and flexibility, though she may be very well equipped in every other way. The list of possible weaknesses is, in fact, just as long as the list of desirable qualities of personality. Weakness may occur in any one of them without occurring in any of the others.

In handling the weak teacher, the first task is to analyze out the exact nature of the weakness; second, to determine its relative intensity;

and third, to adjust the treatment to the specific weakness, in the right degree. This analysis requires definite terms in which to think and definite scales with which to measure. The schedules of standard qualifications present these necessary bases of analysis.

All teachers need to have these schedules of qualifications set before them, since they show in clear and unmistakable terms the necessary goals of effort toward high attainment in the various aspects of teaching character. And they serve as one of the greatest possible stimulations to proper effort. When teachers have before them definite things to be attained and definite levels to strive for, they can aim intelligently and can guide all their efforts intelligently. Even the strongest of teachers have their special weaknesses and their special proneness to weakness in some aspect of their being. Human nature of a high social sort is constructed in such fashion as to presuppose these social goals and these social stimulations, even in the case of the best and strongest. High character, in fact, requires strong and complicated supporting structures in far greater measure than low character. It is possible that when teachers can know definitely what is wanted of them, what is expected of them, on the part of the management, then it is at least probable, considering the abundance of good-will and conscientiousness on the part of teachers, that the major portion of the task of removing weaknesses in the teacher is taken off the shoulders of the supervising staff.

Scales and schedules of qualifications serve as the bases for the right placement of teachers. This value is of course altogether recognized in the matter of academic qualifications. Those who have had longest academic training are made teachers in the high school and those with shorter training are made teachers in the elementary school. A teacher in the high school is given charge of the department of work in which he specialized in the university; and so through the list. It is not so well recognized, however, in the matter of qualities other than the academic. It is possible in our schoolrooms to find motor-minded individuals set to the task of giving instruction in intellectual fields requiring intellectual analysis and wide intellectual vision, with disastrous results. It is possible, on the other hand, to find the intellectualist turned loose in our shops, and kitchens, and school farms, and spoiling all the work by academicizing it. It is possible to find building principals who are not community leaders by nature or experience given the responsibility for the community leadership in education. In the

last conservation congress held at Indianapolis, one of the most startling statements made, but one which was unchallenged because of the general feeling that it required no statistical evidence to give it weight, was: "Don't expect to find in strikes the greatest industrial waste; it will be found in the wrong employment of men. Out of ten men, probably one fills the job that he ought to be filling; and out of ten jobs, probably only one is filled by the man who ought to be engaged for it."

After the long amount of weeding along the entire academic line, and considering the correlation that exists between the intellectual qualities selected and other desirable personal and social qualities, the above estimate of misfit is certainly altogether too large for our profession; but except in degree there certainly is in education the same irrational placement of a large portion of its workers. The proper placement of teachers includes original appointment, promotion, reduction in rank, transfers, and retirements. Present methods of appointment are based upon a portion of such a schedule. Current methods of promotion are based upon increase of merit as shown by the taking of extension courses, by passing further examinations, or increase in length of experience. Arranging promotion according to length of experience is very common. It recognizes that those should be promoted who have the greatest ability, and it presumes that those who have taught longest have greatest ability. As a matter of fact, however, some of those who teach for a long time improve, some remain stationary, some actually decline in ability. If Mr. Bardeen is correct, there is a period of improvement of moderate length, a short stationary period, followed by a long period of decline, in the case of most teachers. Now to arrange salary schedules and promotions on the basis of length of service, while one of the best methods we have at present, is certainly highly inefficacious. One ought, in fact, to be promoted as rapidly as he can advance. He ought to become stationary when he fails to advance. He ought to be reduced in rank when he retrogrades in teaching ability or in teaching character. These further improvements of present plans, however, cannot be accomplished until we have a means of more definitely measuring teaching character and ability. The inability rationally to control promotions and reductions in matters both of position occupied and accompanying salary leaves the supervisory staff relatively powerless to control incentives and to stimulate effort, both for the development of teaching character, and for the securing of a large educational product.

No organization of men, performing any kind of work whatsoever, can so much as hope to become efficient until it can control incentives and stimulations. So long as teachers can lie down in the work and yet be advanced up the scale of promotion by the mere machinery of the organization, it must remain upon a relatively low plane of efficiency.

#### V. PRELIMINARY TRAINING OF TEACHERS

*Principle V.—The management must train its workers previous to service in the measure demanded by its standard qualifications, or it must set up entrance requirements of so specific and detailed a nature as to enforce upon training institutions the output of a supply of workers possessing the desirable qualifications in the degree necessary for entrance into service.*

Although much neglected in actual practice, this principle appears to indicate one of the major supervisory functions. Since the function is so completely neglected at times as to indicate no recognition, the statement will perhaps require some justification. The first justification lies in the fact that the nature of the work that is performed by the supervisory staff is in large measure determined by the entrance qualifications which new workers bring with them when they enter the service. If these entering teachers have been trained in low degree, or if they have been trained to improper methods of work, then the supervisory members must expend a large excess of labor in giving training to young teachers which ought to have been accomplished in the preliminary course. If, however, the younger teachers have been trained in a superior manner, then the amount of supervisory energy required for each teacher is very much less and it can be expended on a much higher professional plane, and look toward very much higher attainment. Any form of labor that will reduce the work of the supervisory staff to one-half in amount and at the same time place it upon a higher plane, is a legitimate portion of the work of the supervisory members. Unless the function is performed by one or other of several methods, the organization cannot hope to attain anything like maximum efficiency.

Looking at the matter from another viewpoint, it is clear that the responsibility stated in the principle rests upon the management of city school systems because of the relation existing between the city organization and the teachers' training institutions. These institutions are

preparing a product for use in the city school systems. It is for the school system that uses the product to say what the nature of the product is to be in all necessary details which is turned out for their use by the training institutions that are engaged in ministering to their necessities.

This relation is perfectly clear in the case of training institutions within our large cities which are integral portions of the city school system and in which the major portion of the entering teachers are trained. If our principle states the relationship correctly, the city training school cannot be an autonomous institution, with the general nature of the work left to the principal of the school and the details of it left to the heads of departments. It appears to be clearly the function of the management of the city school system, the supervisory staff, to say in minute detail what shall be the qualifications of the output of the training school; and this means the determination of the elements that enter into the training curriculum. This appears to be best accomplished in those cities where the directive faculty of the school are at the same time portions of the general supervisory organization of the city. Most progressive cities show this in the practice teaching work, and some are coming to employ it on the side of the instruction.

The performance of this function is not quite so simple in the case of smaller cities, villages, and rural districts that cannot have their own training institutions. At the present time they are more or less at the mercy of relatively autonomous and therefore—so far as the cities receiving their product are concerned—relatively irresponsible institutions. These institutions can turn out what they will, regardless of the wishes of the cities that are to receive their product; and the supervisors must take what they can get. It may be what they need, and it may fall considerably or even greatly below it. The cities themselves are relatively powerless to prescribe the product that is to be turned out for their use by the training institutions.

In practically all cities this is the situation obtaining in secondary education. Training institutions turn out what they will; and city school systems, in employing high-school teachers, feel that they must take the product whether it is of the kind they need or not. In many quarters they are coming to be very firmly of the opinion that their particular needs were but little considered in the shaping of the product that was to go to them. So long as secondary education included only

college preparatory institutions, and college-trained high-school teachers were only college preparatory teachers, the situation was probably not so serious. At present, however, cities are coming to demand of their secondary schools the education of the entire adolescent population between the ages of thirteen and seventeen or nineteen. They are coming to demand that this adolescent education train for actual life in the world of affairs; that it adapt itself scientifically to the various needs of different social classes; that it adapt itself carefully to the individual needs of different types of students; that it be psychologically adapted to the needs of the various stages of adolescence, the most complicated and the most difficult, sociologically and psychologically, of all of the stages of growth. The problems presented are endlessly numerous and complex. The professional training needed of secondary teachers is obviously far greater in amount than the professional training of elementary school teachers. A portion of the training needed by such teachers is naturally training in the special subject-matter which they are to teach; this, however, is probably the smaller portion of the training needed by such individuals.

With this serious situation confronting the directors of secondary education in our cities, they can no longer neglect the performance of this legitimate and necessary function of control, by one method or another, over the training given by the institutions that are supplying them with trained workers. Since the cities are using the product of the colleges, it is for the cities to say what this product shall be. Merely to complain that the product sent to them is not of the right type is not to perform the function. They have the same right to say to the colleges what product shall be sent to them as a transportation system has to say to a steel plant what kind of rails shall be sent to it. They are in a position to command. It is neglect of duty when they confine themselves merely to futile complaint.

How can this function be performed? There seem to be two clear ways, both of which appear to arrive at the same end. The practical business world answers the question for us in one way. Our schools are the training institutions for the workers that go into commerce, for example; the commercial organizations use the product supplied them by the commercial training institutions. The machinists' trade uses the product that comes to them from the machinists' trade courses, and so on.

Now in the case of industrial schools, each department of the practical world demands that there shall be an advisory board of men taken from their own organization who shall be responsible for the curriculum of training, for the qualifications of the teachers, and for the general efficiency of the course in training the workers for the organization concerned. The demand appears to be thoroughly sane and practical. Now what does this suggest to city school systems in the matter of the training of their workers, elementary or secondary, where this is accomplished by institutions outside of their own organization? Apparently it means advisory committees, who are active members of city school organizations, and responsible for the quality of the work that is done by teachers after they come into the organizations, who are to bear definite responsibilities for the formulation of the courses of training for the various grades and classes of teachers, and to look into the qualifications of the teachers engaged in the training of these workers and the general efficiency of the institutions. Certain departments of our universities would naturally look upon such committees as tending to limit unduly, unnecessarily, and unwarrantably, the time-honored independence and irresponsibility of those departments. Other departments, with more modern outlook, recognizing the interconnections of human affairs in an age of miraculous progress due to organization, and recognizing the social service obligations of universities, would welcome this help which would come to them from the practical workers for whom they are, in fact, laboring. Schools of education, teachers' colleges, and the departments of education would welcome it most of all, since right demands from city school systems would mean the full professional training of all secondary workers sent out from our universities. At the present time nine-tenths of these prospective secondary workers never see the inside of the quarters devoted to the professional training of teachers.

Scotland may be mentioned as an example of a country where such a form of supervision of the training institutions is exercised. The various boards of control consist of men who represent the various educational organizations that are to receive the products of the teachers' training institutions. They are not merely advisory; they are directive. Universities and normal schools are not left to an irresponsible performance of this function.

A serious drawback to the application of the principle lies in the fact



that supervisory officials are not agreed among themselves as to what should constitute the standard qualifications necessary for entering upon professional labor in the various departments, especially so in secondary education, where the need is greatest. So far as there is consensus of opinion, this opinion has not been for the most part defined in sufficiently specific and accurate terms for practical use. The lack of standards of performance on the part of the teacher within the classroom, and the lack of security as to what constitutes good methods and what poor methods necessarily results in an equal vagueness of thought as to what should be the training and qualifications of the teachers who are to perform these still more or less undefined tasks. In proportion, however, as the tasks discussed in the earlier sections of our paper are performed, supervisory officials will find themselves in a position definitely to enforce upon training institutions the output of the kind of labor which they need.

This advisory committee suggestion, which comes to us clearly defined from present demands of the business world, is probably, however, not the best, if standing alone. It may have a place. Probably the best method is a combination of specific requirements for entrance into service and of enlightened professional understanding on the part of all concerned of the various bases of these entrance standards. In its practical working out, it means: first, the formulation in specific detail of the kind of training needed by teachers entering service in every aspect of their personality, set up by the city school systems; second, it means a complete, detailed, many-paged, continuous record of the growth of any particular prospective teacher in question through all the elementary, secondary, and professional stages, a perspective backward view of the individual's growth in each aspect of teaching personality as the one thing that can show clearly whether the individual possesses the various qualifications demanded by the city school system; third, the plan requires clear understanding on the part of the supervisors of education, on the part of teachers who enter into the service, on the part of the faculty of the training institution, of the nature and reasons, social and psychological, of the various standards that are established by the city school system in its schedule of qualifications for entering teachers. With these tasks accomplished co-operatively by city school systems, they can be in a position to determine the training that is to be given to the teachers, both elementary and secondary, supplied to them by



outside institutions. They will then be able to perform efficiently a function, the responsibility for performing which even now lies upon their shoulders but which they do not adequately attempt to perform.

## VI. TRAINING DURING SERVICE

*Principle VI.—The worker must be kept up to standard qualifications for his kind of work during his entire service.*

Any aspect of personality, whether desirable or undesirable, atrophies when not exercised. This is generally recognized in the case of muscular strength, skill, and endurance. It is less generally realized to be equally true of mental strength, skill, endurance, adaptability, and fulness of knowledge; or of social qualities, sympathies, enthusiasm, professional zeal, appreciation of the humanities, openness of mind, fulness and right proportions of emotional response, and other like desirable qualities. Science, however, teaches us that every such aspect of personality must be exercised throughout one's teaching career or it dwindles and decays, leaving hollowness, feebleness, indifference, and disproportion.

Teaching personality, taking the term in its widest sense, is not a thing to be formed once and for all time and then left to itself. The higher a quality, the more removed it is from primitive instinct, the more unstable it is, and the more quickly will it atrophy when it is not held to normal strength through exercise. The high desirable qualities of the well-proportioned teacher are of this difficult and instable kind. Unfolded only through exercise, as they are, they can be retained only through continuous exercise.

Teachers must do more, however, than merely hold their own. They must advance with age and experience. On the one hand, they must keep up with professional development in their particular field in order to keep abreast of professional progress; on the other hand, they must continually advance along the lines of promotion. One cannot retain his forcefulness and his flexibility if he continues to do the same thing year after year, however well he may do it. He must continually advance to ever new kinds of tasks in order to retain mental and social flexibility, sensitiveness, alertness, and strength.

The functions of the supervisory staff in the keeping of their workers up to standard fall into two general classes: (1) They must see that teachers have the opportunity for the desirable amount of exercise of

each of the many desirable aspects of the teaching personality. (2) They must organize and control incentives in such a manner as to stimulate the teacher to take advantage of the opportunities that are offered to them in the degree that is desirable. There may be a third important function, namely, guidance and leadership. This seems, however, to fall in part among the opportunities that are offered to teachers, and in part among the incentives and stimulations.

### A. Opportunities

The schedules of qualifications desirable for teachers, quoted in a previous paragraph, indicate that the completely fashioned teacher must be one who rises to the full stature of humanity in every aspect of his being. His work being the full development of men, it is necessary first of all that he himself be a complete man in every proper sense of the term. This result is not to be accomplished by reading books, hearing lectures, or taking extension or summer-school courses, important as these things are in accomplishing a portion of the work. It is to be accomplished only by living a life that is rich in all the desirable phases of human experience. It is becoming more and more apparent that the teacher of today, who is able to bear the social responsibilities that the world is laying more and more upon our profession, must be a man or a woman of the world, using the term in its best sense, with the world's wisdom, the world's vision, its sense of proportion, its sympathies, its humor, and social aims. This is to be accomplished only by participation in the full, active life of the world of affairs.

The teaching life has tended, and yet tends, to be a narrow life. On duty six or seven hours at the school, with two to four hours further labor preparing lessons and looking over papers, little time, energy, or inclination is left for any other activities. The work also is exceedingly narrow because of its being highly specialized and isolated from the other departments of human affairs. The teacher's work is in a quiet eddy outside of the main currents of human action. Although he is preparing individuals for labors within the vocations, the materials that he handles have been so conventionalized as to have lost practically all of their vocational flavor, and his work within the schoolroom has practically no outlook upon the great world of human vocation. He is preparing individuals likewise for the duties of citizenship within a self-governing

community; here again his labors have been usually so conventionalized as to have lost practically all civic relations. So far as his work is concerned, therefore, he has practically no outlook, except in the case of two or three special studies, upon the restless world of civic action and reaction. The same isolation, the same remoteness of his professional labors from the life and work of the active world is just as plainly evident in the case of each of the other departments of human affairs. This is carrying specialization to such an absurd extreme as to defeat the very purposes of the specialization. It is to sever one's relations with the world in order to perform a vital function for the world.

It goes without saying that teachers must keep up with the current literature and current thought of their special subject, with all professional developments in the way of methods, textbooks, or other appliances; that they should attend teachers' meetings, educational lectures, take part in reading circles or extension courses, do school visiting, attend summer schools and teachers' institutes; that they should take advantage, in fact, of all the agencies for the improvement of teachers during service already so well described and discussed in the recent bulletin of the Bureau of Education by Professor Ruediger. These are indispensable matters, having all the values in kind if not in degree there ascribed to them. It must be confessed however that their results are relatively disappointing except where some exuberant and enthusiastic personality arouses by the very contagion of his presence some semblance of fervor of an artificial and more or less unhealthy sort. There is, in so many of these agencies for training during service, a lack of vitality. Theoretically, they seem to be most excellent and desirable; and yet they exhibit a relative failure to keep teachers alive and vigorous and continually growing.

The one thing that will give all these agencies vitality, it seems to me, is to motivate them by giving them human purpose. This is to be done by giving all of the work of the school vital social purpose, and this in turn is to be done by fully knitting up the work of the school with the life of the community. The things taught for vocational purposes are to be linked up with the vocations of the community, and the teacher is to become familiar with these vocational relationships by mingling with the men and women who are engaged in them. This will mean for the teacher and school sympathetic attitudes toward and full understanding of each of the vocations of the community that is being

served by the school, as the school prepares and fashions the various abilities that are sent out for the use of each of these vocations. Overcoming the isolation of the schools will motivate the work of the school; and it will motivate every form of activity, the agencies for training teachers during service, among the rest, that ministers to the effectiveness of the work of the school. Therefore the teacher must live a full, human life not only for the sake of the humanizing effect upon his personal character, but also indirectly to give meaning and purpose and force to the professional activities which are specifically designed for training during service. Only by overcoming the isolation of the work of the school can these already established agencies be vitalized.

Vocation, however, is but one of a number of departments of human activity. In order fully to vitalize the school and indirectly to vitalize all activities that minister to its effectiveness, it is necessary to link up the labors of the school so as to serve the necessities of each department of human activity. This means that the civic training of the school is not to be done in a social vacuum, but that it shall be definitely related to the specific social problems of the community. Only the individual who participates in these social movements can understand them in that intimate degree necessary for teaching their nature and purposes and results. This observation of and sympathetic participation in the social movements of the community appear to be the only things that can vitalize and motivate the civic elements of educational work, both that of the pupils and that of the agencies training teachers during service. Other large fields of human activity where the isolation of the school must in the same measure and manner be overcome, where its work must be linked up intimately with the outside world, and where the life of the teacher must be made as wide as the general community life, are recreation, family life, philanthropy, religion, and general social intercourse.

For the two reasons then which we have sufficiently dwelt upon, it seems evident that the most important single factor in the continuous training of teachers during service is full and sympathetic experience of human life in all its various phases. A number of things are necessary to make this possible in sufficient degree. A few of these are discussed in the following paragraphs.

I. *Time*.—The teacher cannot have the desirable variety of humanizing and socializing experience unless time is given for it. This can be accomplished in one way by cutting down the teacher's hours of labor,

by shortening the school week, or the school year. For a number of reasons, this appears to be neither desirable nor probable. The probability is that both the school week and the school year will be lengthened; it is conceivable also that the school day may be lengthened. Another method of finding the necessary time for varied experiences is by distributing the time that the teacher is on duty during the day, week, and year over a large variety of tasks. As schools become recreation centers, social and civic centers, centers of vocational training, of vocational guidance, juvenile employment bureaus, participants in social surveys and child-welfare movements of every sort, as the labors of the school become fully devoted to the service of the community, a great variety of labors, touching all departments of human affairs, are coming to be performed. The distribution of the teacher's time so that he performs a portion of his work within the classroom, and a portion of it in connection with the other varied services will be a mode of finding time. If the setting-up of definite standards of performance and the scientific determination of the best methods to employ are even half as successful in economizing time and labor in the educational world as they have proven themselves to be in the world of productive industry, then we have here another argument for the performance of these primordial tasks. It would mean the release of time now wasted in ineffective labors which dwarf the teacher, which might well be employed in socializing labors which both humanize him and render him professionally efficient.

In this more varied distribution of the teacher's time, it appears to be necessary, for widening and renewing his vision, that a portion be given him for experiences outside of his immediate community. However varied one's work may be made, if it is a continual performing year after year of the same tasks in the same community, deadly monotony settles down over it all and saps its vitality. Alertness, spontaneity, and elasticity demand continual novelty in one's work. This can be introduced by giving the teachers new points of view from which to observe their work, their charges, their community. These are to be had through changed experiences. If one moves, observes, and works in different fields, and experiences life in new ways under new conditions, his vision is renewed for the things of his own community.

One of the most familiar methods and one of the best is the visiting of the work of other teachers who are working under other conditions. In this the teacher may well begin at home by observing the work that



the necessary activities. After the development of more definite standards and more definite methods, it appears possible so to speed up the work that one teacher may be able to handle two shifts of pupils in academic subjects during a six-hour day with not more than two hours required for daily preparation. The teacher may then be told that the remaining four hours of the day not needed for sleep and meals may be used for the variety of necessary humanizing activities for keeping one's self up to standard. But the daily store of energy, even when developed to its maximum, is limited in amount. It may certainly all be expended in a high-pressure day of eight hours and nothing left over for the remainder of the things that must be done. The time is rendered valueless for the purpose by the lack of energy to expend during that time.

Any aspect of personality is but an avenue of expenditure of energy. The proportional strength of any particular human aspect is the same as the proportional amount of one's daily supply of energy that is expended through that particular outlet. If the daily supply of energy is drained away through a few highly specialized channels with nothing left over for others equally desirable, the result is undue enlargement of the avenues of special discharge, and a closing of the unused channels. It means hypertrophy of a specialized portion of the man and atrophy of other equally desirable portions. If he is expected to mingle freely with the members of his community, if he is to lead in civic, social, or vocational enterprise, if he is to appreciate music and literature and science, if he is to be physically vigorous, it is absolutely necessary that a portion of his daily energies be reserved for expenditure through each of these various channels.

Supervisors must therefore not only distribute the time of the teacher so that he will have an opportunity for all desirable activities, but they must regulate the intensity of the activity in such manner that work shall not be too exhausting. While work must be speeded up for the sake of efficiency, yet this particular principle shows the limitations which must be imposed upon the process, either by reducing the intensity of the labor or by cutting down the time. The most fruitful suggestion made in this connection, however, is the conservation of the health of the teacher by right regulation of living conditions both within and without the school, which would enable the teacher to live upon a much higher plane of physical efficiency, having a larger daily increment of vitality to expend.



III. *Salary.*—The necessary range and variety of human activities enumerated are not available in sufficient degree or on a sufficiently high plane unless the teacher can pay for them. He cannot have healthful and cheerful home surroundings unless he can live in a proper manner in a proper residence neighborhood. Physical and social efficiency demand that his standard of living be upon a fairly high plane in matters of clothing, diet, recreation. He must have opportunity for privacy and quiet, for study and meditation. He must live in a family in natural human fashion; not in the isolation of the boarding- or rooming-house. If he must travel and observe, he must have the means for travel. If he is to have a cultivated appreciation of the various humanities, then he must have money for the purchase of books and music and pictures. He must be able to attend the drama, the opera, the concert, the lecture. If he must attend summer schools for attaining new points of view, then he must be able to pay his way, and to pay for life upon a plane worthy of his labor, not upon the pinched and petty level so frequent in student life.

IV. *A pervading scientific spirit.*—The general spirit of work in any field is highly contagious and tends to communicate itself to all of the workers engaged. Newly employed assistants in a well-ordered hospital, although unfamiliar with scientific procedure, naturally acquire a scientific attitude because of the general atmosphere which surrounds the work. Participation in the work of a scientifically managed farm is one of the best places for developing a scientific attitude toward agriculture.

If, therefore, in our training of teachers during service we wish to develop a fuller scientific attitude toward educational problems, one of the opportunities that must be given to these teachers, one of the most powerful influences that can be employed in developing this particular spirit, is the existence in and about all educational procedure of a general atmosphere of science and rational order. The leaders of the work of education are naturally the ones who must invest the field with this general scientific atmosphere. In the work of determining standards of attainment for each kind of work and for each stage of the work; in the scientific comparison of the efficiency of various methods, all of which appear to be theoretically good; in the scientific testing of all results; in the organization of the work of the school so that it becomes laboratory procedure of the best type as well as educational procedure of the best type; in the conferences and discussions of the workers as they direct



this work and measure its results; in the scientific fraternity of teachers and supervisors, as they work shoulder to shoulder in common obedience to scientific law, supervisors being only the leaders; in the performance of these various tasks, a scientific atmosphere is thrown about all educational problems and labors. And the general spirit of the teacher is shaped to the form demanded by our newer standards of efficiency.

When the real professional training of the teacher during service is of this active scientific sort, then the reading of the teachers and their work in extension and summer schools can be made more valuable than is the case when these are given in unrelated fashion based upon no foundation in the actual activity of the teacher. When the teacher is engaged alongside of the supervisor in the solution of endlessly complicated educational problems which are continually arising in ever-various forms with each new batch of pupils, then the reading can be motivated and rationally directed so as to throw added light upon the actual vital problems in hand. Summer-school courses for teachers can likewise find solid foundations on which to build. They can thereby be made more serviceable.

In this connection it is important to notice the altered personal relations between supervisors and teachers. So long as education is mostly empirical and the empirical deductions of supervisor and teacher are different, in so far as the supervisor actually directs the methods of the teacher, his direction appears to be in large degree personal and arbitrary. It seems a violation of the teacher's understanding of what is the best method. But in proportion as scientific method comes to control educational procedure, then the primary task of the supervisor is to discover the educational law and to apply it through the labors of the teacher, while the primary task of the teacher is to find the controlling scientific law through co-operation with the supervisor and to apply it in co-operation with the supervisor. The two classes of workers stand more nearly upon the same level. They are co-operative specialists, one having specialized in the field in one way, the other having specialized in the field in another way. Each is able to supplement the work of the other. Neither is personally over the other. Both are under the law.

### B. *Incentives*

Now some of these opportunities and the means offered for securing the opportunities are intrinsically desirable in themselves and are them-

serve incentives. This is the case with matters of salary and matters of time. The use, however, is different with some of the matters mentioned in the above list. Human nature is so proportioned that one is easily satisfied with life within a quiet spot after he becomes accustomed to it and will remain isolated from the broad currents of human affairs. Man's social nature is easily satisfied with the things and persons of his immediate environment without looking beyond his narrow social circle. Also in matters of scientific training and procedure one is easily content to remain upon a low plane. Consequently in these matters it is necessary to originate methods of stimulating social and professional impulses which are in general too weak to be relied upon exclusively. While the opportunities offered in the shape of salary and time are essentially attractive in themselves, yet it is necessary even here to place incentives for stimulating a wise use of the salary and of the time. Salaries may be expended upon either a low or a high plane, and likewise the time and energy given to teachers for purposes of self-improvement.

Incentives to be employed are of two classes: those based upon self-interest, and those based upon social instincts. On the former basis, the method is the familiar one of rewarding the teacher for his labor in proportion to the efforts expended, as shown by results. Applied to the present case, it means that the teacher who uses the time and money and other opportunities definitely provided for the purpose, in the way that secures a maximum of desirable results, as measured by the schedule of qualifications, shall receive proper reward in the way of increased salary, professional promotion, social recognition, and a number of others.

But man is not wholly self-centered. He has equally strong social instincts as well. Because of these he enjoys being of service to all whom he looks upon as belonging to his social group. It is this which is providing the solid foundations for our quickening appreciation of "social service." In proportion as the isolation of the school is overcome, and the teacher feels himself, his life, and his work, as integral portions of the total community life, in that degree he will see his work as social service. The social motive will incite him to take advantage of the opportunities offered. To a normal, rightly developed individual, there is no stronger motive among those based on self-interest.

## VII. DEFINITENESS OF INSTRUCTIONS

*Principle VII.—The worker must be kept supplied with detailed instructions as to the work to be done, the standards to be reached, the methods to be employed, and the appliances to be used.*

After the standards of educational attainment in each subject have been determined, the task of the teacher then is to produce results of this quality in his work. After experimentation and statistical comparisons have shown the methods that are best, then these methods must be used by the teachers. When certain materials and appliances have been definitely proven superior to others, these then are the ones that must be chosen and supplied to teachers for their work. General instructions necessarily will be given to teachers in their general training previous to service, but what any particular teacher shall do within any particular school cannot be so given during one's preliminary course. The standards to be reached by one school will be different from those reached by another school located in a different social environment. The normal-school training will teach general principles, and will thus give the teacher the ability to understand instructions given by the management. In proportion as the preliminary training has been complete, the current instructions given by the supervisory staff can be brief and general. The teacher can fill in most of the necessary details.

It is the same with methods. The teacher comes to a particular school with a general understanding of the principles of method. But the methods to be employed under one set of conditions must be in part different from those employed under another set of conditions. And further, since we are at the present time making very rapid advance in the discovery of more and more efficient methods, instruction as to these newer methods can be given only by the management, and in direct connection with the work itself.

In our schools of today, this function is performed in a great variety of ways. Efficiency implies centralization of authority and definite direction by the supervisors of all processes performed; and yet, on the other hand, efficiency likewise demands that the individuality of the teacher be respected; that initiative and professional alertness be not stifled; and that the whole work be alive with spontaneity. Here we find one of the difficult supervisory problems. The problem is to centralize direction and yet keep the total organization fully alive in every unit of its being out to the ultimate worker.

Leaving the limitations of human nature aside, the theoretically most perfect form of organization and direction is the "functional management" devised by the well-known efficiency engineer, Mr. Frederick W. Taylor. This system provides for a "planning room," such as described in a previous section, the special function of which is to determine the particular standards for each kind of raw material, and the best processes or methods to be employed. After these have been determined in ways previously described, the problem, the one discussed in this section, is how best to transmit them to the actual workers.

Under the "functional" plan, the single shop foreman is superseded by several different men called "functional foremen," each of whom, acting in close conjunction with the "planning room," has his own specific duty as an expert demonstrator throughout the shop. The planning room prepares the detailed instructions in connection with every piece of work, and puts these instructions into writing; then these demonstrators or functional foremen, selected for their knowledge and skill in their particular specialties, make sure that the instructions are understood on the part of the workmen and are properly carried out. They assist the workman whenever needed, showing him the best and quickest methods, and studying the individual temperament and capacities with a view to changing a workman from one grade of work to a higher one if he possesses qualities which warrant it, or to a lower one if he proves unequal to the task before him. This constant and personal observation incites the ambitious workman to his best endeavors, since he knows that any special proficiency which he may show will result in his rapid advancement; and every such advancement is an object-lesson to the other less ambitious workmen about him whom he has left behind.

One of these demonstrators makes certain that the drawings and instructions are clearly understood; another, how best to set the job in the machine, and how to eliminate any unnecessary personal motion; another sees that the machine is run at the most efficient speed and that the particular tool is used in the proper way to enable the machine to complete its product in the shortest time; others cover every possible point required in producing the greatest output, and in maintaining the required standard of workmanship. In one of the illustrations described by Mr. Taylor there are in all eight of these functional foremen, each a specialist in his own field, and each giving special detailed instructions to the various workers so as to bring about the greatest possible efficiency.

Under this system instructions as to each piece of work are given in writing to each worker. This necessitates a very much enlarged amount of clerical work in the direction of the business. Results have shown, however, that the increased output is so much greater than the increased clerical labor involved that the latter is but a very insignificant feature of the management.

This system has many advantages. There is an almost equal division of the work and the responsibility between the management and the workmen. The management takes over all work for which it is better fitted than the workmen, while in the past the greater part of the work and almost all of the responsibility were thrown upon the men. The work is divided so that one man need attend to only a few things. It enables complete specialization of labor. It definitely fixes the responsibility for the performance of each function upon one man. It allows the workman opportunity to think out improvements by enabling him to make an intensive study of his work.

"Notwithstanding all these advantages [says Professor Duncan] the functional system of organization has not proven popular or successful in a number of plants where it has been tried. It causes men to lose initiative; it has a tendency to shift and divide the responsibility in spite of the contrary intention. This has been found to be true in several places where the plan has been tried. The difficulties that have been encountered in carrying the scheme through are: (1) It requires a great amount of clerical work to fill out instruction-cards and write out all orders and minute instructions. (2) It is exceedingly hard at times to define clearly to whom certain functions belong and upon whom the responsibility rests when things go wrong, when there are so many as eight different foremen each in part responsible for the same task."

Where the system has been given a fair trial under favorable conditions, it has been wondrously successful, as shown by results quoted in a previous chapter.

Notwithstanding this enormous success of the method, there appears to be one very serious defect in the plan. In the specialization of the workers it is assumed that the science relating to standards, methods, and processes, is almost wholly the portion of the management, whereas the routine labor and the skill necessary for carrying out the dictates of science is the portion of labor that belongs to the workman. The plan as described in most of the instances implies that the workmen are in general mostly untrained in the technical science of industry and for

this reason practically all of the thinking and the scientific direction must be written out and given in connection with each particular kind of task. It is hard to see how this could do otherwise than mechanize the worker, destroy all powers of thought and initiative, and in the end undermine in large degree his working efficiency. Where the system has failed, it appears to be chiefly because nothing is left to the initiative of the worker. The cumbersome instructions cannot be understood, or the functional foremen do not get around to him until he has lost half a day in waiting for them; if, under such circumstances, the man could interpret instructions where they are defective, or if, knowing the general processes of the industry, he could proceed with his work in some fashion at least until the functional foreman arrived, most of the actual objections would be eliminated.

The remedy for this particular defect of the system, it would appear, is the technical, industrial training of the worker previous to service, and the continuing of the technical training of the worker during service so that he is at all times reasonably familiar with the controlling science in its general outlines as used by the planning room. He could then carry out most of the labors desired by the planning room on the basis of fairly brief and general directions. On the basis of this sort of training, he could safely be left to his own ingenuity after having received general instructions as to the way things were to be done. His intelligence would enable him to recognize where his judgment was insecure, and he could know when to ask questions of the functional foremen or of the planning room as to standards and methods. Where the plan has been most completely successful, it appears that there has been intimate and friendly co-operation at all times between the management and the workmen. The workmen have thus been able to obtain some insight into the general scientific principles controlling the work, so that while definitely and wholly responsible to the management at all times, yet they still had abundant opportunities for initiative, and there was abundant responsibility upon them so as to prevent mechanization.

We have gone into a discussion of the "functional" method thus fully because it offers so many suggestions for the scientific direction of education. The form of organization of the instruction department of our better organized city school systems presents at the present time a modified form of the "functional" plan of management. Corresponding to the functional foremen of the factory, there are in this portion of the

school system the supervisors of special subjects who give definite instructions to teachers as to the particular course of training that is to be followed, the particular standards that are to be attained, the stages of attainment in reaching these standards, and the nature of methods that are to be employed. Some of the aspects of the work which frequently receive this special supervision are music, drawing, writing, physical training, medical inspection and care, manual training, domestic science, school gardening, and the training of defective children. The building principal becomes one of this number of special supervisors inasmuch as he takes care of the usual school arts, history, and geography. Sometimes this special part of the work is in part cared for by primary, intermediate, and grammar-grade supervisors who look after the so-called regular subjects.

In the form of organization, therefore, within the instructional department, our profession is rather far advanced. In the degree of development of the work, however, a countless number of things need yet to be done. The necessity of developing the planning room has already been sufficiently discussed. The results, however, of the work of the planning room must be transmitted to the teachers so that there can never be any misunderstanding as to what is expected of a teacher in the way of results or in the matter of method. This means that instruction must be given as to everything that is to be done. But as we indicated above, there is certainly a better method of giving this instruction than by giving out detailed instructions each day or week as to each individual task to be accomplished. Full technical training before and during service together with constant contact of teacher with the representatives of the planning room will enable the management to give instructions that are wholly definite and yet give them in brief general terms, leaving the teacher to the direction of his inner technical knowledge as to standards and procedure. So long as the teacher uses standard methods or better, and accomplishes standard results or better, there is no need of supervisory interference or supervisory direction. Under such circumstances, the direction is from within, and the limitations upon the teacher are set from within. The teacher's freedom is necessarily narrowly limited, but the limitations are those of law and not the limitations of personal arbitrary authority. When, however, a teacher finds himself unable to direct his work from within, then the supervisor must give definite directions as to what is to be done and



how it is to be done. Responsibility for recognizing situations where the instructions required are unusual, and such as have not been given previously, directly or indirectly, rests upon the supervisory staff. It is for them to take the initiative.

This means a considerable quantity of continuous instruction. As the planning department discovers better methods of doing any specific thing, these must be handed on to the teacher interested in that topic. At the present time these discoveries are being made in all departments of our work. As surveys of conditions bring about changes of standards; as psychological investigation throws more and more light upon the stages of growth and indicates different progressive standards in attaining the ultimate one, the information must likewise be given by the supervisory staff to the teachers concerned. Teachers must not be permitted to stand still and remain in the same department with the same kind of work continuously. They must pass up the line of promotion; they must frequently be shifted from one kind of work to another, so as to place them where their services can be the most valuable. Whenever a shift is made up or down the line or from one field to another, large responsibility must rest upon the supervisory staff for giving initial instructions as to all standards and methods. In proportion, however, as teachers are widely informed as to the general technical principles of education, these instructions can be given in relatively general form, the teacher being left to his own judgment in the matter of filling in the details. In proportion as teachers are not informed along technical lines, instruction must be proportionally specific.

On the basis of this plan it would appear that there ought to be no external interference with the teacher's freedom and initiative so long as the teacher is able to go right; but that there should be interference the instant that he cannot go right, or the instant that he does not go right. It appears that there is nothing in this to which the teacher can object. In fact, in so far as he looks upon his labor as social service, there is nothing that he could more desire than to be properly instructed where knowledge is defective, and to be set right instantly the moment that he departs from the path of professional rectitude.

This plan cannot mean the unifying of all of the work. One sometimes reads of the educational systematizer who organized his work in such fashion that the same task was being performed by each grade in each building in the city at the same time each particular day. In fact,



the plan was made to cover wider areas than the single city. But such a plan did not involve any scientific study of any individual differences between children and the necessity of variations to meet the needs of different abilities. Neither did it consider the fact that different social conditions require different treatment, and that therefore educational procedure must be always adapted to the great variety of conditions. The plan did not involve any scientific investigation, experimental or statistical, as to the nature of the best methods to be employed or the best time for the performance of each kind of work. It involved simply the arbitrary authority of one man or one central body of men. The centralized method of "functional organization" discussed here bears little resemblance to this fortunately disappearing method. Resemblance exists only in the matter of centralization of authority and definiteness of task.

Teachers cannot be permitted to follow caprice in method. When a method which is clearly superior to all other methods has been discovered, it alone can be employed. To neglect this function and to excuse one's negligence by proclaiming the value of the freedom of the teacher was perhaps justifiable under our earlier empiricism, when the supervisors were merely promoted teachers and on the scientific side at least knew little more about standards and methods than the rank and file. Today it is an excuse that appears fair, but is in part but a respectable cover for ignorance and indolence. Nothing less than this is fair to the teacher. The amount of knowledge required at the present time in even elementary education is so extensive that no one individual can be expected to cover it all. The principal must specialize in one way and the teacher in another so that their efforts may supplement each other. A supervisor's primary function is specialization in the science of the subject whereas the teacher's specialization is in the practice of the subject.

#### VIII. OTHER PRINCIPLES

Owing to the limitations of space, application of other general principles of management to the problems of education cannot here be made. Further discussion might well cover such principles as the following:

*Principle VIII.—It is a function of the management to discover and to supply the tools and appliances that are the most effective for the work in hand.*

*Principle IX.—Responsibility must be definite and undivided in the case of each task to be performed in the total series of processes.*

*Principle X.—Incentives must be placed before the workers so as to stimulate the output on their part of the optimum product.*

*Principle XI.—In a productive organization, the management must determine the order and sequence of all of the various processes through which the raw material or the partially developed product shall pass, in order to bring about the greatest possible effectiveness and economy; and it must see that the raw material or partially finished product is actually passed on from process to process, from worker to worker, in the manner that is most effective and most economical.*

## APPENDIX

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### SUPERVISION OF BEGINNING TEACHERS IN CINCINNATI

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JOHN W. HALL

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*Introduction by the Secretary.*—Cincinnati maintains a unique scheme for the supervision of teachers during their first years of service. The supervision begins when, as students in the city university, the prospective teachers are doing practice teaching in the public schools. It continues under the direction of the university authorities during a period of cadetting and after appointment to regular teaching. This co-operative relation between the city public-school system and the city university is administered through the College for Teachers which is maintained jointly by the university and the city board of education. This college is engaged primarily in training teachers for the elementary schools of the city in a four-year course which leads to a standard Bachelor's degree. Professor Hall who has charge of the scheme of supervision has provided the following description of certain of its aspects.

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This paper deals with practice teaching and the criticism and supervision of candidates for positions in the elementary schools of Cincinnati. Two types of teaching under supervision are required, one before graduation from the city university, the other after. The former, the so-called practice teaching, requires the teaching of a series of fifteen lessons per semester and concerns itself mainly with the problem of class instruction. The latter, locally called cadetting, requires two months' experience in full charge of a room, thus involving an additional multitude of duties. The former, only, receives university credit. Much of the latter is paid for as regular substitute work. All of it is done in the local public schools and facing whatever conditions the particular school and class may present.

*Practice teaching.*—This year, two graduate students and fifty-seven out of a senior class of ninety-nine are doing the work in practice teaching. Each student is assigned a topic or series of topics that may

be handled with a particular class in about fifteen thirty-minute recitation periods, as, for example, the story of the *Iliad* with fourth grade, the study of Russia with sixth grade, reading Shakespeare's *Julius Caesar* with eighth grade, construction work and games involving arithmetic with second grade, building and loan associations with seventh grade, etc. The class is surrendered completely by the principal and the regular teacher for the time necessary to do this work. The topics selected are units in themselves and the student is held responsible for this particular piece of work. The room teacher, consequently, may carry on other work which the course of study calls for in the subject, without overlapping or without conflict of any kind. The student teaches geography or literature or arithmetic two days in the week while the regular teacher takes different topics in these subjects on the other days.

All of the practice teaching is done Tuesday and Thursday forenoons, each student reserving the necessary time on his college program on these days. Four of the public schools are being used this year in order to secure the required number of classes for fifty-five of the students. Two are doing this work in the colored school, two in the school for defectives. No public school has been used oftener than one year in four or five, except the colored school, for which the number of candidates each year is small.

One school with twenty-six regular teachers will serve as a typical example of the amount of time devoted to practice teaching in a single school. Fifteen of the classes are being used this semester, two by two students each. Not more than four students are teaching at any one time. It will be seen that although this is rather a large number of strangers coming into a school, neither the school nor any one of its teachers is very much disturbed. In fact, the principals and nearly all of the teachers welcome the work for the variety and suggestion which it brings into the school.

In the practice programs the first and last periods are congested, due to the fact that the college programs of some of these students are such that they must teach at these periods. When this is not the case, the students and the programs of the teachers yield to the need for an arrangement that will make possible the inspection of all the work at a single visit by one member of the college Department of Education.

In almost every case, the students have been allowed to choose the

grades and the subjects in which they wished to teach during the first semester. During the second semester they will teach in the same schools but in a different grade and subject, selected by the inspectors with reference to the individual needs of the students.

Little is made of observation. Each student visits the class in which she is to teach once or twice, meets the principal and the teacher, and gets the names and seating arrangement of the children. During this week of observation, if it may be so called, the student looks up the subject-matter which she is to teach, organizes it tentatively for the series of lessons and perfects the plan for the first lesson. This involves two or more individual conferences with some member of the Department of Education.

For this individual conference work, during the present semester, one member of the department has the students who teach arithmetic and history, 22 in all; another has those teaching second-grade reading and fourth-grade story, 19 in all; while the writer has those who teach fifth-grade story, third-grade story, art, domestic science, and the students teaching in the school for defectives, 18 in all. Monday and Wednesday afternoons are devoted to these conferences and each lesson plan is worked out in detail before it is taught. Whenever possible, the students are grouped for these lesson-plan conferences. However, when a member of the department goes to a school the work of all of the students teaching there is observed regardless as to who supervised the making of the plans. It not infrequently happens that when the student is criticised upon a certain point, the member of the department who has supervised the plan is called upon to justify his suggestion, in which case the student and the two instructors talk it out.

The first lesson is not observed. Heretofore, having fewer students, we have been able to visit about two-thirds of the lessons. This semester every student has been visited at least twice by each instructor, that is, six out of her fifteen lessons. The regular teacher of the class absents herself from the room for the first three or four lessons, after which she uses her own pleasure about visiting, but with the distinct understanding that while in the room she is to take no part in the lesson by word, look, or gesture. If a student has difficulty with the order the regular teacher is requested to lend the influence of her presence. The principals are in sympathy with the work and come and go as they wish. All of

this teaching is completely under the direction of this department of the College for Teachers. The students may ask advice or other assistance from the regular teacher or the principal, or these latter may volunteer their suggestions if they think they can be of any assistance. This is with the distinct understanding, however, that the student is to use her own judgment as to how far, if at all, she can profitably use the suggestions thus offered.

During the visit of the college instructor, which may last from five minutes to an entire lesson, he makes note of the few points, with possible illustrations, that he thinks valuable to discuss with that particular student, and at the earliest convenient time the student comes for these suggestions. These criticisms are meant to be of a concrete and constructive character. Usually by means of the critic's questions, the student is enabled to make her own reconstruction. Nevertheless, it is a time when the instructor gives the student, frankly but sympathetically, the result of his best judgment as to the handling of the particular situation, but as in the case of the principal and the regular teacher, it is with the distinct understanding that the student will use only the suggestions which she feels that she can use with understanding and profit. If the student cannot use any of these suggestions, it is expected that she will devise some way of her own for attacking the situation with which she has had difficulty. The only thing urged is that each member of her class be reached and taxed and in such a way as to increase his interest and power in the subject rather than decrease it. It is felt that if these ends are being attained, the method and devices of the student are pretty well justified.

*Cadetling.*—For the cadetting above referred to, a number of students, from one to five or six, are assigned to a particular school in order to give wider experience. Each cadet is required to teach in two different grades, in one until recess, in the other from recess until noon, taking full responsibility for the room, becoming the regular teacher for that time. The afternoons are left free for preparation. Since no pay is received for this work, the cadets may be drafted for regular substitute work whenever opportunity offers. It is easily seen that the cadetting is much more of an interruption to the regular work of a school—a cadet taking each of two rooms for one-fourth of every day. The need for substitutes in the last two years has been such as to practically absorb all the cadetting which was left after graduation. This

year the need has been such that all of the cadets have been given temporary appointments to regular positions at the substitute's salary of forty-five dollars per month. These assignments continue "temporary" for at least two months and until the college department staff recommends that the appointment be made permanent at sixty dollars per month. In case a student seems unlikely to succeed in one position, she is transferred to another for a fresh start. This cadetting will probably be changed to a temporary appointment for one year of the graduates of the College for Teachers at the regular salary of sixty dollars, the appointment to be made permanent at the end of that time upon the recommendation of the college department staff. This will doubtless apply also to all first appointments in the city schools.

*Supervision after appointment.*—All teachers appointed under the above regulations as well as other candidates for appointment are subject to the supervision of the department of the College for Teachers. In addition to having had specified professional training, candidates who have not been trained under the direction of the College for Teachers must meet the following regulation relative to "Practice" or experience.

The mark "Practice" is based upon personal inspection of the candidate's teaching. Candidates who have had the "Practice" that accompanies the professional work in education in the College for Teachers or a state normal school may be ranked and become eligible to permanent appointment after they have proven themselves in full charge of a class for a period of not less than two months, as cadets, substitutes, or temporary appointments.

Teachers of experience are required to teach under our personal inspection only so long as is necessary to prove their ability. In suburban schools they will be visited (with the consent of the superintendent), otherwise they must come to the city and teach under our supervision—usually not more than one week.

The eligibility lists are made up at least twice a year and those remaining upon the unexhausted list are ranked in their proper places among the new candidates, with the thought that the city is always entitled to the best available candidates.

For the eligibility list last June there were sixty applicants for the first list (college trained) and twenty-three for the second (trained in normal schools). Out of these there were finally placed on the first list, forty-three; and on the second, five.

In addition to the above, all teachers who have been appointed in the elementary schools of this city since the introduction of the merit system in September, 1905, are theoretically subject to the supervision of the members of this college department and may be visited at any time. The numbers have grown so great, however, that the supervision has necessarily narrowed itself to the first year of teaching in the city schools with continued visiting of individual teachers the second year and longer where it seems especially important.

The supervision as indicated above, and of the cadets and temporary appointees, is carried on in much the same manner and spirit as is that of the practice teaching. The visits are of necessity less frequent but longer. After each visit the teacher has a personal conference with the supervisor, either at the school or by appointment at the university. These conferences not infrequently occupy an hour. The result of the visit and the substance of the conference is embodied in a typewritten report, one copy of which is filed in the office of the superintendent of schools and one in that of this department of the university. Any teacher who especially requests may see his own report. Some of these reports follow.

May 9, 1912

*Grade 7*

Mr. R.

I visited the room several times and saw parts of spelling, history, and arithmetic. In every case the teacher was hearing recitations and it seemed that all the preparation necessary for such work as he was doing could have been made in half an hour. The spirit of the class was pretty good and they had the attitude of attention. There was, however, no genuine interest or anything to be interested in.

In the spelling, rules and book statements concerning prefixes and suffixes were given by the class when called for, but there was left on the board without criticism or discussion the following list of words written by one girl: "sensor, migrator, interior, anchor."

In discussion later with Mr. R., I pointed out to him that a wise discussion of those four words would have been more valuable than anything he did in the class. The first word was misspelled; three of them, although they ended in *-or*, did not show the use of that suffix; and the fourth, *migrator*, is not a word in common use. In making sentences using the suffix *-ness*, the sentence "The sweetness of the apple is great" was not quite satisfactory to the teacher, but "The sweetness of the apple is good" was acceptable—showing how formal their thinking was.



The history lesson was based on some papers which the children had prepared. It was a review—six weeks before the end of the year. The children had made lists of American and British victories and of American and British generals. All they did practically was to read from their papers—not even a discussion of relative values.

In the arithmetic, before they took up their problems on the board, the teacher said, "We will take up again our development of the subject of customs and duties." This consisted of the following questions: "What do you understand by customs and duties?" "Why only on imported goods?" "What kinds of duties are there?" "What do you understand by specific duties?" "What do you understand by ad valorem duty?" In each case the children seemed trying to remember the definitions from the book and the teacher was satisfied with that result.

I spent an hour talking over this work with Mr. R. I pointed out to him that it was bare hearing of recitations, without interest or genuine content, and then I took up each lesson in detail and showed him one way in which it might be presented so that it would be of interest and value. I told him that I thought the children's time was largely wasted, and that they must have been more or less bored by the work, and I tried throughout our discussion to make him see that good work requires time and mental effort in preparation. A large growth and improvement is necessary before Mr. R. is a satisfactory teacher.

September 26, 1912

*Grade 8*

Mr. R. [Same as previous one.]

*Arithmetic.*—The idea of percentage was well developed by the use of fractions. The lesson was well planned and the steps logically presented. Class were all thinking and in good working order.

*Grade 8*

Mr. W.

I think Mr. W. is improving in his relationship to the children, and slightly in the quality of his teaching. He still shows irritation, however, and a tendency to lose his temper in situations where he is largely to blame himself. I have pointed out to him that almost every loss of temper is a backward step, and makes it likely that he will say things to the children that approach the character of an insult, at least it would be so considered by him if I should say such things to him as he says to the children, or if I indicated such an attitude toward him.

I saw him teach a grammar lesson and a history lesson. So far as the quality of the teaching in the grammar lesson was concerned, it seemed to me that there was little to commend. It was purely formal and had no relation

that I could see to any feeling of need on the part of the children for the grammatical notion presented. I pointed out ways in which I thought that relationship might be made, and pointed out to him also the bearing which such work would have upon his problems of discipline. I suggested dramatization and other interesting composition work which might be made the starting-point for a good deal of his grammar work, especially by way of application. In his history work he seemed to me to raise a few genuinely vital questions.

May 25, 1910

*Grade 5*

Miss G.

My impression of Miss G. as a teacher is that she is generally weak, indecisive, and uncertain. Her preparation is not strong, nor is her organization or questions or ability in handling the answers of the children. I nevertheless think that in the first or second grade she may do work that would prove fairly satisfactory.

April 25, 1912

*Grade 3*

Miss G. [Same as one before.]

I rarely have greater pleasure in a visit. When I first went in, Miss G. had about fifteen of her children; the rest had gone to German. These in the room were reading to each other from a book which the teacher supplied, doing this most earnestly and seeming to be interested. Later, with this same group, the teacher was presenting a poor physiology lesson, but the children were working hard on it.

Then I saw the rest of the class come in, in a most informal way and yet with such perfect order in the best sense that I was extremely pleased. There were forty of them, certainly not very clean and rather poor, difficult looking children, but they sat with bright looks and an attitude of expectancy which certainly spoke well for the teacher. They had a good language lesson in which all were working, and then they played a story which had been told well and with good spirit. I praised Miss G. for the kind of work she was doing and talked over her physiology with her, showing how she could make it much more valuable and interesting. It is fine to see her succeeding and in so difficult a place.

The appointees who are not graduates from the College for Teachers, unless especially excused by the superintendent of schools, are required to attend a weekly conference with a member of the department during the first year in the city schools and to submit a written lesson plan every two or three weeks. Otherwise, written lesson plans are seldom required. During the practice teaching, cadetting, and teaching for

inspection for the eligible list, the school principals and regular teachers have no official relation with the candidate, although the incidental relationship has been most sympathetic and cordial.

After appointment, either temporary or permanent, the teacher becomes a regular member of the principal's corps of teachers and the members of the college department have no authority beyond what the value of their suggestions may carry, and the fact that reports such as those herewith presented are made for the superintendent's office. Differences of judgment and policy between the supervisor and the principal are likewise embodied in these reports and are open to the inspection of the principal. When the plan for a trial year is completely established, the continuance of the teacher in the public schools beyond this time will be conditioned upon the recommendation of the supervisors.

It remains to mention another phase of supervision carried on by a member of the staff of the College for Teachers. This is the inspection of candidates for promotion to principalships and to the high schools. This work is done by the specialist in secondary education. This year it has been extended to visiting high-school instructors with the intention of ranking them for promotion. This supervision is done in much the same spirit as that described above and is accompanied by similar reports. The candidate for promotion to high school must be a college graduate with majors in the subjects in which he wishes to teach, must pass the city examination making a grade of nine in the majors, and must have his teaching approved by the inspector. The candidates are grouped with reference to the subjects in which they qualify and are appointed in the order of merit as thus indicated. The requirements for eligibility for principalships, and for promotion within the high school itself, have not as yet been formulated.

By way of summarizing the personal elements of supervision as they have appeared in the work in Cincinnati, we are moved to say that—with absence of the feeling or the attitude of superiority, with full appreciation of the conditions, the difficulties, and the efforts of the teacher, with an impersonal and accurate statement of what took place in the lesson, with fairly good judgment and resourcefulness in suggestions for substitution or improvement, with a fair-minded estimate of its value—it is remarkable what difficult cases may be handled without interruption of friendly working relations.

*Principle IX.—Responsibility must be definite and undivided in the case of each task to be performed in the total series of processes.*

*Principle X.—Incentives must be placed before the workers so as to stimulate the output on their part of the optimum product.*

*Principle XI.—In a productive organization, the management must determine the order and sequence of all of the various processes through which the raw material or the partially developed product shall pass, in order to bring about the greatest possible effectiveness and economy; and it must see that the raw material or partially finished product is actually passed on from process to process, from worker to worker, in the manner that is most effective and most economical.*

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# CONSTITUTION OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

(Revision Adopted in Chicago, February, 1909)

## ARTICLE I

*Name.*—The name of this Society shall be “National Society for the Study of Education.”

## ARTICLE II

*Object.*—Its purposes are to carry on the investigation and to promote the discussion of educational problems.

## ARTICLE III

*Membership.*—SECTION 1. There shall be three classes of members—active, associate, and honorary.

SEC. 2. Any person who is desirous of promoting the purposes of this Society is eligible to active membership and shall become a member on approval of the Executive Committee.

SEC. 3. Active members shall be entitled to hold office, to vote, and to participate in discussion.

SEC. 4. Associate members shall receive the publications of the Society, and may attend its meetings, but shall not be entitled to hold office, or to vote, or to take part in discussion.

SEC. 5. Honorary members shall be entitled to all the privileges of active members, with the exception of voting and holding office, and shall be exempt from the payment of dues.

A person may be elected to honorary membership by vote of the Society on nomination by the Executive Committee.

SEC. 6. The names of the active and honorary members shall be printed in the *Yearbook*.

SEC. 7. The annual dues for active members shall be \$2.00 and for associate members \$1.00.

## ARTICLE IV

*Officers and Committees.*—SECTION 1. The officers of this Society shall be a president, a vice-president, a secretary-treasurer, an Executive Committee, and a Board of Trustees.

SEC. 2. The Executive Committee shall consist of the president and four other members of the Society.



SEC. 3. The president, vice-president, and secretary-treasurer shall serve for a term of one year. The other members of the Executive Committee shall serve for four years, one to be elected by the Society each year.

SEC. 4. The Executive Committee shall have general charge of the work of the Society, shall appoint the secretary-treasurer, and may, at its discretion, appoint an editor of the *Yearbook*.

SEC. 5. A Board of Trustees consisting of three members shall be elected by the Society for a term of three years, one to be elected each year.

The Board of Trustees shall be the custodian of the property of the Society, shall have power to make contracts, and shall audit all accounts of the Society, and make an annual financial report.

SEC. 6. The method of electing officers shall be determined by the Society.

## ARTICLE V

*Publications.*—The Society shall publish *The Yearbook of the National Society for the Study of Education* and such supplements as the Executive Committee may provide for.

## ARTICLE VI

*Meetings.*—The Society shall hold its annual meetings at the time and place of the Department of Superintendence of the National Education Association. Other meetings may be held when authorized by the Society or by the Executive Committee.

## ARTICLE VII

*Amendments.*—This constitution may be amended at any annual meeting by a vote of two-thirds of voting members present.

# MINUTES OF THE ST. LOUIS MEETING OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

(Held in the Convention Hall of the Planters Hotel, St. Louis, Mo.)

ANNUAL MEETING OF THE SOCIETY, MONDAY, FEBRUARY 26, 1912,  
AT 8:00 P.M.

MEETING OF THE EXECUTIVE COMMITTEE, TUESDAY, FEBRUARY 27, 1912,  
AT 2:00 P.M.

*President W. C. Bagley in the Chair*

*S. Chester Parker, Secretary*

At the beginning of the Monday evening meeting, the President appointed the following Nominating Committee: Superintendent A. S. Cooke, Baltimore County, Maryland; Professor J. N. Deahl, of the University of West Virginia; Professor L. D. Coffman, of the State Normal School, Charleston, Illinois; President Charles McKenny, of the Milwaukee Normal School; Professor F. E. Thompson, of the University of Colorado. Later in the evening the Nominating Committee presented the following report which was adopted:

*For President*, Superintendent James H. Van Sickle, of Springfield, Mass.

*For Vice-President*, Professor Edward F. Buchner, of Johns Hopkins University.

*For member of the Executive Committee*, Professor William C. Bagley, of the University of Illinois.

*For member of the Board of Trustees*, President David Felmley, of the Illinois State Normal University.

The meeting was devoted largely to a discussion of the 1912 *Yearbooks* which treated of the following topics:

Part I, "Industrial Education, Typical Experiments Described and Interpreted."

Part II, "Agricultural Education in Secondary Schools."

President Bagley opened the discussion by giving a brief statement of the main points in the *Yearbooks*. The discussion was continued by the following persons: Professor C. H. Judd, of the University of Chicago; Superintendent R. J. Condon, Providence, R.I.; W. T. Bawden, editor of the *Journal of Vocational Education*; R. P. Halleck, principal of the Boys' High School, Louisville, Kentucky; David Snedden, Commissioner of Education of Massa-

chusetts; State Superintendent C. P. Carey, of Wisconsin; R. E. Hieronymous, secretary of the Education Commission of Illinois; Dick Crosby, of the U.S. Department of Agriculture; Professor M. E. Marsh, of Berea, Kentucky.

At a meeting of the Executive Committee on Tuesday, at 2:00 P.M., it was decided to devote the 1913 *Yearbooks* to a discussion of School Supervision, possibly devoting one *Yearbook* to City Supervision, and the other to Rural Supervision.

**WILLIAM C. BAGLEY, *President***  
**S. CHESTER PARKER, *Secretary***

# FINANCIAL REPORT OF THE SECRETARY-TREASURER OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

JANUARY 1, 1912 TO DECEMBER 31, 1912

## RECEIPTS FOR 1912

Balance on hand January 1, 1912.....		\$591.57
From sale of <i>Yearbooks</i> by University of Chicago Press:		
June to December, 1911.....	\$364.69	
January to June, 1912.....	482.83	
		<hr/>
		\$847.52
Interest on savings' bank account.....		9.35
Dues from members (current and delinquent)		
Active.....	227.31	
Associate.....	82.20	
		<hr/>
		\$309.51*
		<hr/>
Total income for the year.....		\$1,166.38
Total including initial balance.....		\$1,757.95

## EXPENDITURES FOR 1912

### *Usual Expenses*

#### *Publishing and distributing two "Yearbooks":*

Printing <i>Eleventh Yearbook</i> , Part I ("Industrial Education").....	\$339.57	
Printing <i>Eleventh Yearbook</i> , Part II ("Agricultural Education").....	275.31	
Distributing above <i>Yearbooks</i> .....	39.35	
Author's reprints.....	3.15	
Circulars about <i>Yearbooks</i> .....	7.13	
		<hr/>
Carried forward - - - - -		\$664.51

\*This amount received for dues is so much less than the amount received in 1911 (namely \$427.50) because many active members paid \$3.00 instead of \$2.00 in 1911 owing to an error in sending out the bills. This gave these members credit for \$1.00 on 1912.

**FINANCIAL REPORT OF THE SECRETARY-TREASURER** **115**

*Brought forward* - - - - - **\$664.51**

**Secretary's office:**

Secretary's salary from end of Mobile meeting, February, 1911, to end of St. Louis meeting, February, 1912.....	<b>\$100.00</b>	
Secretary's traveling expenses for St. Louis meeting, February, 1912.....	<b>37.86</b>	
Typewriting.....	<b>\$10.40</b>	
Stationery.....	<b>16.50</b>	
Stamps.....	<b>18.26</b>	
Telegrams.....	<b>2.18</b>	
Exchange.....	<b>4.75</b>	
	<hr/>	
Total running expenses.....	<b>\$52.09</b>	
	<hr/>	
Total for Secretary's office.....		<b>\$189.95</b>
		<hr/>
Total usual expenses.....		<b>\$854.46</b>

**Unusual Expenses**

250 reprints of <i>Third Yearbook</i> , Part I ("Theory and Practice").....	<b>\$28.20</b>	
250 reprints of <i>Sixth Yearbook</i> , Part II ("Kindergarten and Elementary Education").....	<b>63.00</b>	
	<hr/>	
Total unusual expenses.....		<b>\$91.20</b>

**Summary**

Usual annual expenses.....	<b>\$854.46</b>	
Unusual expenses.....	<b>91.20</b>	
	<hr/>	
Total expenditures for 1912.....		<b>\$945.66</b>
Balance on hand December 31, 1912.....		<b>812.29</b>
		<hr/>
		<b>\$1,757.95</b>

**MEMBERSHIP**

Number of active members (including one honorary) December 31, 1912.	<b>152</b>
Number of associate members December 31, 1912.....	<b>82</b>
	<hr/>
Total membership.....	<b>234</b>

**S. CHESTER PARKER, Secretary-Treasurer**

The accounts of the Society were audited for the year 1911 by the Trustees (Messrs. Judd, Holmes, and Halleck) and found to be correct and kept with commendable care.

# **LIST OF ACTIVE AND HONORARY MEMBERS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION**

## **ACTIVE MEMBERS**

Arline, Howard E., West Technical High School, Cleveland, Ohio.  
 Bagley, Wm. C., University of Illinois, Urbana, Ill.  
 Baldwin, Bird T., Swarthmore College, Swarthmore, Pa.  
 Benedict, Ezra W., Walden, Orange Co., N.Y.  
 Blaine, Mrs. Anita McCormick, 344 E. Erie St., Chicago.  
 Bolton, Frederick E., State University, Seattle, Wash.  
 Boyer, Charles, Superintendent of Schools, Atlantic City, N.J.  
 Bradford, Mrs. Mary D., Superintendent of Schools, Kenosha, Wis.  
 Bricker, Garland A., Ohio State University, Columbus, Ohio.  
 Briggs, Thos. H., Jr., 523 W. 124th St., New York City.  
 Brooks, Sarah C., 9 Crescent Ave., Newton Center, Mass.  
 Brooks, Stratton D., State University, Norman, Okla.  
 Brown, George A., *School and Home Education*, Bloomington, Ill.  
 Brown, John F., 559 W. 156th St., New York City.  
 Brown, J. Stanley, Superintendent Township High School, Joliet, Ill.  
 Brumbaugh, Martin G., Superintendent of Schools, Philadelphia, Pa.  
 Bryan, W. J. S., 6102 Waterman Ave., St. Louis, Mo.  
 Buchner, Edw. F., John Hopkins University, Baltimore, Md.  
 Burnham, Ernest, State Normal School, Kalamazoo, Mich.  
 Burruss, Julian A., State Normal and Industrial School for Women, Harrison-  
     burg, Va.  
 Bush, Ira Benton, Superintendent of Schools, Parkersburg, W.Va.  
 Call, Arthur Deerin, 612 Colorado Building, Washington, D.C.  
 Cammack, I. I., Principal High School, Kansas City, Mo.  
 Carroll, Clarence, Superintendent of Schools, Marblehead, Mass.  
 Caughley, John, District High School, Christchurch, New Zealand.  
 Chadsey, Chas. E., 1767 Humbolt St., Denver, Colo.  
 Chandler, J. A. C., Superintendent of Schools, Richmond, Va.  
 Charters, W. W., State University, Columbia, Mo.  
 Claxton, P. P., Bureau of Education, Washington, D.C.  
 Coffman, Lotus D., University of Illinois, Urbana, Ill.  
 Condon, Randall J., Superintendent of Schools, Providence, R.I.  
 Conradi, Edward, Industrial, Normal, and High School, Tallahassee, Fla.

- Cook, Albert S., County Superintendent of Schools, Towson, Md., Sta. A.  
Cooke, Flora J., F. W. Parker School, 330 Webster Ave., Chicago.  
Cook, John W., President Northern Illinois State Normal School, DeKalb, Ill.  
Cubberly, Ellwood P., Leland Stanford Junior University, Stanford University, Cal.  
Davis, B. M., Miami University, Oxford, Ohio.  
Davis, Emma C., 2024 E. 46th St., Cleveland, Ohio.  
Deahl, Jasper N., University of West Virginia, Morgantown, W.Va.  
Dearmont, Washington S., President State Normal School, Cape Girardeau, Mo.  
De Garmo, Chas., Cornell University, Ithaca, N.Y.  
Doyle, Mary E., Holy Names Normal School, Capital Hill, Seattle, Wash.  
Dyke, Chas. B., Superintendent of Schools, Youngstown, Ohio.  
Earhart, Lida B., 430 W. 118th St., New York City.  
Eby, Frederick, State University, Knoxville, Tenn.  
Edmund, Gertrude, Cohocton, N.Y.  
Elliott, C. H., State Normal University, Carbondale, Ill.  
Elliott, Edw. C., University of Wisconsin, Madison, Wis.  
Ellis, A. Caswell, University of Texas, Austin, Texas.  
Elson, Wm. H., 1768 E. 89th St., Cleveland, Ohio.  
Farrington, Frederick E., Teachers College, Columbia University, New York City.  
Felmley, David, President Illinois State Normal University, Normal, Ill.  
Fleshman, A. C., State Normal School, Kearney, Neb.  
Forbes, Geo. M., 235 Dartmouth St., Rochester, N.Y.  
Foster, H. H., Ottawa University, Ottawa, Kan.  
Frederick, J. M. H., Superintendent of Schools, Lakewood, Ohio.  
Frost, J. M., Superintendent of Schools, Muskegon, Mich.  
Giddings, Margaret, Supervisor of Kindergartens, Denver, Colo.  
Gilbert, Chas. B., 1170 Broadway, Room 709, New York City.  
Greeson, Wm. A., Superintendent of Schools, Grand Rapids, Mich.  
Groszmann, Maximillian P. E., Plainfield, N.J.  
Gwinn, J.M., Superintendent of Schools, New Orleans, La.  
Halleck, Reuben Post, Principal Boys' High School, Louisville, Ky.  
Hamilton, Cora M., State Normal School, Macomb, Ill.  
Hanus, Paul H., Harvard University, Cambridge, Mass.  
Harris, Ada Van Stone, Assistant Superintendent of Schools, Richmond, Va.  
Harwood, Samuel E., State Normal School, Carbondale, Ill.  
Hatch, W. H., Superintendent of Schools, Oak Park, Ill.  
Henderson, Harmon C., State Normal School, Milwaukee, Wis.  
Hill, Patty Smith, Teachers College, Columbia University, New York City.  
Hitchcock, Clara M., Lake Erie College, Painesville, Ohio.

- Holmes, Manfred J., Illinois State Normal University, Normal, Ill.  
Horn, Paul Whitfield, Superintendent of Schools, Houston, Tex.  
Jeffers, Fred A., Superintendent of Schools, Painsdale, Mich.  
Jenks, Jeremiah W., Cornell University, Ithaca, N.Y.  
Johnson, Pliny, Woodward High School, Cincinnati, Ohio.  
Jones, Lewis H., President State Normal College, Ypsilanti, Mich.  
Judd, Charles H., University of Chicago, Chicago.  
Kaye, James H., President State Normal School, Marquette, Mich.  
Keating, J. F., Superintendent of Schools, Pueblo, Colo.  
Kirk, John R., President State Normal School, Kirksville, Mo.  
Kirk, W. H., Superintendent of Schools, E. Cleveland, Ohio.  
Kraus-Boelti, Mrs. Maria, Hotel San Remo, Central Park, W. 74th and 75th  
Sts., New York City.  
Lawrence, Isabel, State Normal School, St. Cloud, Minn.  
Lawson, W. C., Superintendent of Schools, Bryan, Tex.  
Lewis, Homer P., Superintendent of Schools, Worcester, Mass.  
Logan, Anna E., Miami University, Oxford, Ohio.  
Lord, L. C., State Normal School, Charleston, Ill.  
Lowry, Chas. D., 1643 Kenilworth Ave., Chicago.  
Lucas, Hardin, State Normal School, Valley City, N.D.  
Luckey, G. W. A., 1439 R St., Lincoln, Neb.  
Lukens, Herman T., F. W. Parker School, 330 Webster Ave., Chicago.  
Lyte, E. O., President State Normal School, Millersville, Pa.  
Mackey, E., Superintendent of Schools, Trenton, N.J.  
Manny, Frank A., Teachers' Training School, Baltimore, Md.  
Marrrs, S. M. N., Superintendent of Schools, Terrell, Tex.  
Marsh, J. T., Assistant State Superintendent of Schools, Charleston, W. Va.  
Marsh, M. E., Berea College, Berea, Ky.  
Maxwell, Wm. H., Superintendent of Schools, New York City.  
McDaniel, C. M., Superintendent of Schools, Hammond, Ind.  
McKenny, Charles, President State Normal School, Ypsilanti, Mich.  
McMurry, Charles A., State Normal School, De Kalb, Ill.  
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# THE TWELFTH YEARBOOK

OF THE

## NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

### PART II

#### THE SUPERVISION OF RURAL SCHOOLS

BY

A. C. MONAHAN, L. J. HANIFAN, J. E. WARREN, W. LUND, U. J. HOFFMAN,  
A. S. COOK, E. M. RAPP, J. DAVIS, J. D. WOLCOTT

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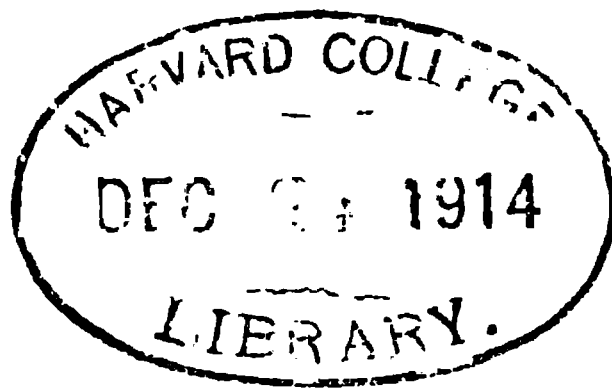
*Edited by S. CHESTER PARKER, Secretary*

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THIS YEARBOOK WILL BE DISCUSSED AT THE PHILADELPHIA MEETING OF THE  
NATIONAL SOCIETY, MONDAY, FEBRUARY 24, 1913, 8:00 P. M.

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## PREFACE

This is the third annual *Yearbook* of the National Society to deal with an important phase of the administration of rural schools. In 1911 *The Rural School as a Community Center* was discussed and in 1912, *Agricultural Education in Secondary Schools*. These volumes were made up of contributions from experts in the several lines of rural education which were considered, and contained accounts of what was actually being achieved in typical situations.

The Secretary has continued the policy pursued in 1911 and 1912, and with the able assistance of Mr. A. C. Monahan, specialist in rural education of the National Bureau of Education, has organized this volume on *Supervision of Rural Schools*. Mr. Monahan made the program and suggested the contributors, and the Secretary arranged with the latter for their contributions.

Upon the urgent request of the Secretary, Mr. Monahan agreed to prepare the introductory paper himself. To him and to the other specialists who have contributed, the Society is indebted for their assistance and co-operation. The bibliography prepared by Mr. J. D. Wolcott, of the Bureau of Education, should prove of special service by assisting in further study of the problem.



# **I. THE STATUS OF THE SUPERVISION OF RURAL SCHOOLS IN THE UNITED STATES**

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**A. C. MONAHAN**

Specialist in Rural Education, U.S. Bureau of Education

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The difference in organization for the management of school affairs in rural and urban portions of the United States makes rural supervision and urban supervision in large measure dissimilar problems. The schools in the ordinary urban system are under the charge of a city school board. The board employs a school superintendent who as its agent is both an administrative and a supervisory officer. In all but the larger cities he is the agent of the board in the management of the business of the school system, as well as in directing its instructional work. The duties delegated to him in connection with the repairs of the school buildings, buying school supplies, and administering the school funds are administrative; those of directing the instructional work of the school, arranging the course of study and dictating the methods of teaching, are supervisory. The selection of the teacher may be said to be both administrative and supervisory, but it is a function of the supervising officer wherever the school board employs two separate agents, a business manager and a school superintendent.

In the majority of states the unit for the management of rural school affairs and the unit for supervision are not the same. The administration and the supervision are, therefore, in large measure distinct. Both were formerly the functions of the school trustees. The tendency is now to turn over to a county superintendent the supervision, the trustees retaining the management of the school and the selection of the teacher. The unit of supervision for rural schools in 38 states is the county; the supervising officer, the county superintendent. In nearly two-thirds of the states with county supervision the unit of administration is the "single district." This is a small area served in most cases by one school, usually—outside of villages—a one-room, one-teacher school. The voters of each school district elect a board of trustees who are their agents in the management of the school affairs. These trustees have, as a rule, complete control over the school and its affairs, respon-

sible only to the voters of the district. They provide school buildings, make the necessary repairs, furnish supplies and facilities for teaching, secure the teacher and make rules and regulations to govern the school. They expend the school funds and in several states have the power to levy a special tax for school purposes.

The county superintendent under this district system is largely an advisory officer, holding whatever power he may possess by virtue of the county and state school funds which must pass through his hands and be expended with his approval. In many states he examines teachers and grants licenses to teach. Without his certificate no persons may be employed to teach in the district schools unless they hold certificates granted by the state. Through this function the county superintendent is given some power over the teachers. His principal duties are the administration of the county school funds, the examination and certification of teachers, the keeping of statistical records, and making reports to the county board of education and the state superintendent of public instruction, conducting teachers' institutes, visiting schools, and doing whatever he may be able to improve the quality of the instruction given in the school. His task is difficult, as the superintendent in the average county has to deal with as many separate boards of trustees as there are schools in the county.

Four states with the county for the unit of supervision have the township for the unit of organization for administrative purposes. In these states the duties, powers, and limitations of the county superintendent are practically as stated above. On the whole he has a better opportunity of accomplishing more for the good of the school, as he has fewer separate boards of trustees in his territory and, therefore, fewer trustees to educate and to influence into progressive action for the betterment of the schools. In eleven states the county is the unit of administration and the unit of supervision as well. In only five of these, however, is the actual balance of power in the hands of the county board of education. These five are properly organized for efficient supervision.

County supervision will probably never reach a satisfactory degree of efficiency, except in a comparatively few cases, until the county becomes the unit of administration, so that the county superintendent may be the agent of the county board of education in the management as well as in the supervision of the educational work of the schools.

And then he must be supplied with sufficient assistance so that the schools may be visited frequently. The average county superintendent under the present prevailing system visits each school in his county once during the school year, the average length of his visit being about two hours. In the 18 largest cities in the United States one supervising officer, devoting half or more than half of his time to supervision, is employed for each 19 teachers. It is probably true that the city-school system must be more machine-like than the county system, and that the country teacher must depend more upon her own initiative and ingenuity and less upon the supervisor than the city teacher. However, enough supervisors should be provided so that each would have not over 40 teachers under his oversight. It is evident that the county superintendent without such assistance can do little to improve the quality of the teaching in his county through personal criticisms and suggestions coming from an actual knowledge of the teacher's strength and weakness as an instructor or as a school manager.

Rural supervision in the United States is in the hands of city, town, and union district superintendents in New England, town and township superintendents in Ohio, district superintendents in New York, division superintendents in Virginia, deputy state superintendents in Nevada, and county superintendents in all other states.

New England school affairs are almost entirely in the hands of township officials, the county having no authority and the state only partial authority over a few schools in townships which are receiving state aid. All schools in the township whether in the village or in the open country are under the management of the same township school board. Weak townships may form "union districts" for the purpose of engaging superintendents who divide their time between the townships hiring them. In managing the school affairs each township remains distinct and separate. In administration and supervision no distinction is made between urban and rural. City superintendents with very few exceptions have one or more rural schools under their oversight. In all other states except Delaware, Maryland, Florida, and Louisiana cities and incorporated towns are usually set apart as independent school districts under local control. The township superintendent of Ohio, therefore, does not necessarily have under his oversight the village schools, as incorporated villages and towns are, as a rule, independent. The district superintendents of New York have oversight of all town

and rural schools in their districts, except in cities of 5,000 population or over.

The New York supervisory district is a county or a part of a county. There are 207 districts in the 57 counties, the number of districts in each county varying from 1 to 8. The "division" in Virginia is one or more counties; 80 divisions contain 1 county each; 10 divisions contain 2 each. Nevada is divided into 5 districts with from 1 to 6 counties in each. A deputy state superintendent has charge of each division.

The extent of the various supervisory units is given in the following statement:

#### EXTENT OF THE VARIOUS SUPERVISORY UNITS

38 states with the county unit have county superintendents.

2 states, in which the unit is one or more counties, have division superintendents and deputy state superintendents, respectively.

1 state, in which the unit is a county or a part of a county, has district superintendents.

7 states with the township unit have township or union superintendents, a union being composed of two or more townships.

Several states with the county supervisory system have made provisions for closer supervision than is possible by the county officer unassisted. Of these West Virginia and Oregon are especially noteworthy. As the district supervision in these two states is treated elsewhere in this volume a meager outline only will be given here. West Virginia in 1907 authorized "district superintendents" to have the supervision of all the country, village, and town schools in the district, exercising the same powers, duties, and privileges usually conferred upon city superintendents. The school district in West Virginia referred to here is the magisterial district and is about one-sixth of a county. In 1911-12 there were 37 district superintendents working in 19 counties, each of whom had an average of 34 schools under his jurisdiction. The district board of education is authorized by the law to engage a district superintendent if it sees fit to do so, or the board may be required to do so upon the written application of a majority of the taxpayers of the district. Oregon in 1911 enacted a school law which provides for a county board of education in each county having more than 60 school districts. This board is required to divide the county into "supervisory districts" to contain from 20 to 50 schools each and to place in each district a "supervisor." This supervisor is a county officer,



responsible to the county through the county superintendent. There are now, in 1912, 24 such supervisors.

In the early summer of 1912 Kentucky authorized county boards of education to appoint "county supervisors" to help supervise the schools under the direction of the county superintendent. The schools opened for the fall term of 1912 with 46 supervisors already engaged; 70 were in office by the close of the year 1912. About 34 similar "county supervisors" have begun work in as many counties distributed throughout the southern states, largely due to the activities and influence of the Southern Education Board and its agents.

The school laws of North Dakota provide an office assistant to county superintendents in counties having 50 or more schools. In counties of 150 or more schools the county superintendent is allowed in addition to his office assistant 1 deputy for every 100 schools to assist in visiting schools and in their general supervision. There were 10 supervising deputies employed in 1912. Maryland has a similar provision in her school laws and there were employed in that state in the school year 1911-12 "assistant county superintendents" in 3 counties. The new school code adopted in Pennsylvania in 1911 provides for assistant county superintendents in the largest counties. A few other states have passed permissive legislation but little advantage of it has yet been taken.

Another plan of aiding county superintendents in their supervisory work has met with considerable success in a few counties where tried in Virginia, South Carolina, Georgia, Alabama, Mississippi, and Louisiana. In these counties there has been appointed a rural school "industrial teacher" working under the direction of the county superintendent. The work of this teacher consists in visiting the rural schools of the county for the purpose of introducing industrial work such as sewing, cooking, gardening, and establishing cooking clubs, canning clubs, corn and tomato clubs, and school improvement associations. While not directly concerned with the academic work of the school, the effects of the visit of such a teacher have been to produce an awakening in the entire life and the work of the school. They have proved their value by showing themselves able to make many suggestions regarding the management of the school, the arrangement of the program, and methods of teaching of especial value to inexperienced teachers.

There is included in this paper a large table which shows for each state the unit of organization for the administration of the rural schools,

## RURAL SCHOOL SUPERVISION

	Unit of school Administration	No. of Counties	No. of Superintendents		By		Term in Years
Alabama.....	County	67	67	"	county board of education	"	4
Arizona.....	District	14	14	"	"	"	3
Arkansas.....	"	75	14	"	"	"	3
California.....	"	58	58	"	"	"	4
Colorado.....	"	62	62	"	"	"	3
Connecticut.....	Township	5	44	"	"	"	3
Delaware.....	County	168	43	"	"	"	3
Florida.....	County	3	3	"	"	"	4
Georgia.....	County	47	47	"	"	"	4
Idaho.....	County	146	146	"	"	"	4
Illinois.....	District	87	27	"	"	"	3
Indiana.....	"	102	102	"	"	"	3
Iowa.....	Township	92	92	"	"	"	4
Kansas.....	District	99	99	"	"	"	3
Kentucky.....	District	105	105	"	"	"	3
Louisiana.....	County	119	119	"	"	"	4
Maine.....	County	70	70	Supervisors (assistants to county superintendents)	"	"	4
Maryland.....	Parish	60	60	Parish superintendents	"	"	4
Massachusetts.....	Township	16	11	City	"	"	1 to 3
Michigan.....	County	520	213	Township	"	"	1
Minnesota.....	Township	354	74	Union	"	"	1
Mississippi.....	County	23	23	"	"	"	3
Missouri.....	Township	24	110	"	"	"	1
Montana.....	County	354	79	"	"	"	3
Nebraska.....	Township	83	83	"	"	"	3
Nevada.....	District	86	86	"	"	"	3
New Hampshire.....	County	79	79	"	"	"	3
New Jersey.....	District	114	114	"	"	"	3
New Mexico.....	County	99	99	"	"	"	3
New York.....	District	16	5	"	"	"	3
North Carolina.....	Township	20	13	Deputy superintendents of pub- lic instruction (for 16 counties)	"	"	3
North Dakota.....	Township	234	23	City and town superintendents	"	"	3
	District	21	21	Union superintendents (for 77 townships)	"	"	3
	"	26	26	County superintendents	"	"	3
	"	57	57	District " (for 57 counties)	"	"	3
	County	100	100	County superintendents	"	"	3
	Township	49	49	"	"	"	3



the unit of supervision, the number, titles, manner of appointment, and length of terms of the supervising officers. It shows also the extent of supervision. It has been necessary to include the city and town superintendents in those states where the township is the unit of administration and of supervision for the reason already stated. No other city superintendents are included except in the 4 states already referred to, in which city and rural schools are both a part of the county system under the same management and oversight.

The manner of appointing or electing the supervising officer has a direct bearing upon the efficiency of his work. In every state where the township is the unit of supervision it is also the unit of organization and the superintendent is selected by the local school board. The quality of the man selected depends largely upon the ideals of the board. In some cases the selection must meet with the approval of the state authorities where the state is contributing to the schools to be supervised. In the other 41 states, including those with county supervision and New York, Nevada, and Virginia, the supervising officers are elected by the people in 29 states; they are appointed by the county board of education in 8; by the state board in 2; by the state commissioner of education in 1 with the approval of the state board in 1; and by the governor in 1. This is shown, together with the length of the term for which they are appointed, in the following table:

**APPOINTMENT AND TERM OF THE COUNTY SUPERINTENDENTS AND THE SUPERVISING OFFICERS IN NEW YORK, NEVADA, AND VIRGINIA\***

Elected by people for 2 years.....	19
Elected by people for 4 years.....	10
Appointed by county (or district) board of education	
for 2 years.....	3
for 4 years.....	4
for 5 years.....	1
Appointed by state board of education	
for 4 years.....	2
Appointed by state commissioner of education	
for 3 years.....	1
Appointed by governor for 2 years.....	1
Total.....	41

\* New York: District Superintendents.

Nevada: Deputy state superintendents of public instruction.

Virginia: Division superintendents.

## II. DISTRICT SUPERVISION

### WEST VIRGINIA AND OREGON AS EXAMPLES

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L. J. HANIFAN

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District, or township supervision has for its object the close and effective supervision of the rural elementary schools. When a state, or a community, provides for such rural supervision it but tardily recognizes and adopts those principles of administration that have been found most effective in all forms of successful organized effort. We need only to look about us to see these principles in operation. Note, for examples, the administration of a great railroad system, the organization of a political party, or the handling of large military forces. Everybody is made responsible to and is directed by somebody else higher up. Even the churches are effectively organized and the clergy more or less closely supervised. Every large university has its president, its deans, and its heads of departments. Every city or large town has its superintendent, its district supervisors, its supervisors of special subjects, its principals of buildings, even its head janitors. But as the rural schools have been the last of all the varieties of schools to undertake any kind of improvement, so have they been the last to adopt these well-known principles of administration. That the rural schools have accomplished what they have and continued as an institution can be explained only by the fact that our rural teachers have, for the most part, been men and women of unusual devotion to their work, and that the funds for the support of these schools have come from an inexhaustible public treasury. But the time has come when the deplorable condition of country life in general and of the country schools in particular cannot longer continue so without seriously endangering the whole fabric of our national life. The people are, for the first time, becoming aroused to this fact, and conscious efforts are being made now to build up such a rural civilization as will be in keeping with the growth and prosperity of our nation as a whole.

Once this work of developing a rural civilization was begun seriously and consciously, it was discovered that squarely in front of all progress in rural life betterment stood the neglected rural school. The problem came to be, How to improve this rural institution, and through it to improve country life. For it has been found by experiment that reforms of whatever sort must come through the growing, not the adult, members of the population. The lamented Dr. W. S. Knapp demonstrated the truth of this principle by his experiences in his great work toward improving agricultural conditions in the South.

In our attempts thus far to improve the rural schools, we have tried a great many different plans. Some of these plans have succeeded, others have failed—at least partially so. The success of the best of them has been limited to rather narrow areas and peculiar conditions. To the administrative factor of the problem some very definite contributions have been made, though the adaptation of these contributions has been varied and rather limited.

It was Horace Mann's idea to train individual teachers for the work of the rural schools. For this purpose, he opened the first normal school in this country, at Lexington, Mass. This idea of Mann's spread rapidly, until today we have normal, or teachers' training schools scattered all over the land. No one would discount the excellent work these schools have done and are doing today. And yet it must be admitted that most of the direct benefits derived from these schools have been reaped by the city schools, which, owing to the larger salaries they could offer, could outbid the country schools for these trained teachers.

A little later came the plan of establishing graded schools in the country by means of consolidating small rural schools into central graded schools, transporting the pupils by wagons. This movement has spread through favored sections of a great many states, and with singular success where conditions were favorable to this plan of rural school improvement. But good as the plan is, where feasible, it can never help conditions in the large majority of the rural schools. The extension of the movement is necessarily limited by bad roads, by mountains and rivers, and by sparsity of population. This is particularly true in the mountainous sections of our country. It is safe to say that, for by far the greatest number of our country boys and girls, the one-teacher school will for many years yet continue to be the best.

The question is then, what can be done to reach and thus improve this large number of one-teacher schools?

As a means of reaching effectively *all* the rural schools, and especially the one-teacher schools, district (township) supervision has, within recent years, come more and more into favor with many students of rural school administration. For more than a score of years Massachusetts has had this plan in successful operation. Connecticut and some of the other New England states have adopted plans similar in character to that of Massachusetts. West Virginia has had optional supervision since July 1, 1908. New York inaugurated a system of compulsory supervision of all her rural schools May, 1910, and Oregon in May, 1911. Kentucky and Alabama have adopted district supervision within the last twelve months.

This departure in rural school administration has been made in recognition of keenly felt needs. In some of the states the ineffectiveness of the office of county superintendent has emphasized the need of some more effective plan of supervising the rural schools. This statement is made not as a reflection upon the holders of this office, for most of our county superintendents have labored faithfully to meet the heavy demands upon them. The increased number of schools, the ever-growing clerical demands, and the enlarged conception of the professional nature of the work of school superintendent, all have contributed toward making the office bigger than any one man. Those who advocate district supervision recognize this changed situation and merely seek to give the county superintendent relief from some of this vast amount of work by employing, as his assistants, as many expert supervisors as are necessary to insure thorough and systematic supervision of all the schools in his county.

The aim of district supervision is in general outline fourfold:

1. *To improve the administration of the business affairs of the rural school.*—The average board of education is composed of men who know very little about schools. They do not grasp the school situation well enough to know how most economically and effectively to spend the school funds at their disposal. They are men busy with their own affairs and could scarcely be expected to spend as much time with school affairs as would be necessary to supervise the construction of buildings, the making of repairs, the buying of supplies, the furnishing of fuel, and a large number of other things. A general manager, the district

supervisor, is needed to look after all these matters, always under the direction of the board. It is safe to say, if observation is worth much, that without expert supervision of the business affairs of these boards, twenty-five per cent of the building and supply funds is wasted.

2. *To help the teacher in her work.*—If we can picture to ourselves a girl yet in her teens, with no experience, with but little more than an elementary education, with no professional training, going out into an isolated rural district to teach a school of from twenty to fifty boys and girls, many of them larger and some older than herself, having against her the prejudices of the community and bad conditions generally, this girl doomed to stay in this community from the beginning of the term to its close, with little social life, with no one to give a word of encouragement or advice, such a picture will be fairly representative of the situation in a very large number of rural schools at this time. This teacher needs, even craves, sympathy and help. In very many such cases the supervisor turns the tide from failure to success.

3. *To train the teachers while they teach.*—The number of rural teachers who have had normal training is relatively very small. It would be folly to ask these teachers to quit teaching and go to a normal school. They must be trained while they teach in their schools. District supervision proposes to train *one* man for each group and send him out into the district to train these teachers for more effective work. This plan provides a training school in each district as it were, taking this training to the teachers instead of sending the teachers away to the training. The plan has at least the advantage of associating the practice with the theory of teaching.

4. *To provide for effective community leadership.*—Leadership in the rural districts is sadly lacking. There is no logical leader of the whole community. The minister is the leader only of his own church. The country doctor seldom assumes the leadership which his superior training and experience fit him for. The farmer does not have sufficient motive to cause him to assume community leadership. But the district superintendent of schools, by virtue of his office, is a logical leader of all the people of his district. He comes in contact in one way or another with every family. He knows neither class nor creed. He assumes leadership in all efforts for the betterment of his people. Without such leadership it is a difficult matter to carry through any project looking toward social, educational, or moral uplift.



## WEST VIRGINIA AND OREGON AS EXAMPLES

It may be worth while to note very briefly how each of these states came to provide for district supervision. In West Virginia the board of education in one district felt so keenly the need of someone to look after the interests of the rural schools that they appointed, in 1901, an experienced teacher for this work. There was no law for such action at the time, and to avoid complications, this teacher was appointed as a truant officer, which office the law provided for. This experiment led to the passage of a law in 1908 making the appointment of district superintendents optional with boards. The law went into effect July 1, 1908.

In Oregon it was observed that many farmers were moving to town to educate their children, while others were sending their children to the towns to be educated. A committee was appointed in 1910 to investigate this situation and discover, if possible, the causes. The committee reported that the rural schools were really inferior to the town and city schools and that it was their opinion that this inferiority was due to the fact that the city schools were well supervised, while the country schools had almost no supervision. The state superintendent submitted this report to the legislature in 1911, with his recommendation that a law be passed establishing district supervision. The law was accordingly passed and became effective May, 1911.

## LAWS GOVERNING DISTRICT SUPERVISION IN WEST VIRGINIA AND OREGON

The West Virginia law makes district supervision optional with boards of education, except that a petition in writing of a majority of the taxpayers may compel a board to appoint a superintendent. When it has been decided that any district shall have supervision, it becomes the duty of the board to appoint a superintendent, fix his salary, and issue such rules and regulations as seem necessary. The only qualification specified by law is that the appointee shall hold a first-grade state teacher's certificate. The powers and duties of the superintendent are defined by law as those which "are usually conferred upon city superintendents." These superintendents are required "to make such reports as may be required by the state superintendent of free schools." It is further provided that a board of education may employ the principal of any graded school in the district as superintendent "*provided* he shall devote at least half his time to supervision." Furthermore, by decision of the

state superintendent two or more small districts may unite to employ a superintendent.

The Oregon law makes district supervision compulsory in counties having over sixty school districts. A "school district" is defined as a community having fewer than one thousand children of school age. In such counties it becomes the duty of the county superintendent to appoint four persons who, with himself as chairman, constitute a county education board. It is the duty of this board to divide the county into supervisory districts, having not fewer than twenty, nor more than fifty, school districts; to employ and contract with a supervisor (the county superintendent must be the supervisor of one of these districts); to provide him with all necessary supplies (including stationery and postage); to make rules and regulations governing the work; and to serve as an advisory board to the county superintendent. The appointee shall hold a teacher's certificate valid in Oregon and shall have taught school for at least nine months in the state of Oregon. His salary shall be not less than \$1,000 or more than \$1,200 per year of ten months. It is the duty of a supervisor to work under the direction of the county superintendent; to devote his entire time to the supervision of the schools; to enforce the state course of study; and to make monthly written reports to the county superintendent.

#### THE WORK OF THE SUPERVISORS

The work of the district supervisors varies greatly with local conditions. No two supervisors will attack the problems in the same way, or get the same results. But there are certain large principles of school administration that must be followed by all alike, if the best results are to be obtained.

The work of a supervisor in any district consists in meeting local needs by adaptation of these principles of administration to conditions as he finds them. Individual initiative and physical energy determine largely how well the supervisor will meet and become master of a local situation.

It should be borne in mind that supervision of rural schools is a comparatively new profession in the educational field, just as sixty years ago supervision of city schools was a new profession. It is true that we have had county supervision for many years. And the county superintendents' work is essentially rural. But owing to the working of politics,

the increased amount of clerical work, and the large number of schools in most counties, county superintendents have never been able to raise their work to the dignity of a profession. So that when the rural supervisors began their work, they found themselves in a new field. But the experiences of the past few years have laid some foundations which will serve as a basis for developing rural school supervision into an attractive, because of its being a remunerative and interesting, field of work. In some states students in normal schools and in departments of education of colleges and universities are consciously preparing themselves for just this work. This new work opens up a fine field of work for ambitious young men and young women. Even today it is drawing into its field many principals of city ward schools and superintendents of small city schools.

Briefly stated the work of the supervisor of rural schools is the same as that of the superintendent of a city-school system, only that it is a means of solving rural-school problems instead of city-school problems. In each case it is but a matter of providing the best schools that can possibly be had for the given community. Local conditions are the guiding factor in every case.

As a concrete example of what some of these supervisors *are* doing, let me submit the following outline of the work of one supervisor in Oregon the year 1911-12.

1. Installed individual drinking cups in several schools.
2. Had sanitary water jar, or cooler, placed in several schools.
3. Secured the analysis of the drinking water in a large number of schools, with the result that in four cases out of five the water was condemned.
4. In all but one school had window boards installed for ventilating purposes.
5. Had the stoves jacketed in most of the schools.
6. Secured medical inspection of the pupils.
7. Readjusted the seating of the pupils with reference to health and comfort.
8. Emphasized the importance of better hygienic conditions and placed a copy of Dr. Allen's Health Rules in every school.
9. Distributed among the schools four-hundred ninety-nine supplementary readers for the individual grades.
10. Enforced the state course of study.
11. Helped the teachers in their efforts to use modern methods and devices of teaching.

12. Encouraged picture study in all the schools.
13. Secured the exchange of pupils' compositions with other school children in Oregon and in other states.
14. Assisted boards of education in securing and *retaining* capable teachers.
15. Persuaded boards to supply better school equipment.
16. Directed the work of the Teachers' Reading Circle and encouraged many teachers to attend summer schools.
17. Supplied teachers with lists of helpful state and government publications.
18. Held twenty-five public meetings and at ten of these gave stereopticon lectures.
19. Held a district school exhibit or fair.
20. Helped the pupils plan for vocational work during the summer vacation.

In West Virginia the State Department of Schools has taken a directive part in the work of the district supervisors, though in co-operation with the county superintendent. With the exception of "making such reports as the state superintendent may require," this feature of the work is voluntary on the part of the supervisors, but as a matter of fact they are always glad to get such suggestions and help from the state department as the time and energy of the members of the department will allow.

In September, 1912, a circular letter was sent from the state department to all the district supervisors and to the county superintendents as well. This letter, which follows, was intended as a sort of yearly outline of endeavor for all the rural schools in the state.

- I. *Better attendance*.—Secure the co-operation of truant officers and parents.
- II. *Better sanitation*.—Make sure of pure drinking water. Secure individual drinking cups and closed water jar or cooler.
- III. *Improvement of grounds* and of wall decorations.
- IV. *Libraries*.—Better to secure supplementary readers for the individual grades than to buy miscellaneous books.
- V. *Try to secure equipment*—globes, charts, wall-maps, etc. Many schools are very poorly equipped. The teacher cannot work without tools.
- VI. *Grading of one-room schools* according to the new course of study.
- VII. *Better teaching*.—Secured by close supervision of work in the school-room, by teachers' meetings, and by personal study of methods and devices.
- VIII. *Exchange of compositions*, one school with another in same district or in other districts, or even in other counties.

IX. *Encourage the pupils* to do their best work in composition, drawing, paper cutting, etc., by allowing them to exhibit their work on the walls.

X. *Parents' meetings*.—Nine-tenths of all school troubles come from misunderstandings of one kind or another. These meetings will bring about a better understanding between the teacher and the parents.

XI. *Free publications*.—Write to West Virginia College of Agriculture, Morgantown, and the Department of Agriculture, Washington, D.C., for their very valuable publications on the teaching of agriculture.

This same outline of work for the year 1912-13 was printed on one page of the pupils' monthly and term report cards which are in the hands of all the teachers and pupils in the rural schools of the state and through the pupils thus reach the parents also.

The major part of the work of the supervisors in West Virginia is along the following general lines:

1. To assist boards of education in the business administration of the schools. One supervisor was able to save his district the whole amount of his salary for the entire year by employing business methods in buying fuel alone. Until that year the furnishing of fuel had been "farmed out" to patrons of the individual schools by a process called "selling out the fuel." Instead of auctioning off the contracts for furnishing fuel in each school district, the supervisor under the direction of the board advertised for bids to furnish fuel for the entire district. The cost was much less, and the service much better.

Another supervisor aided his board in saving between \$7,000 and \$8,000 by working out a practical scheme of readjusting the schools to the population. In this district 101 teachers were employed during the year 1911-12. Many of the schoolhouses had been built from ten to fifteen years. Meanwhile the population had so shifted that some of these schools had not over ten pupils, all in walking distance of other small schools. This year the number of teachers was reduced to eighty-six, and yet not a single new schoolhouse was built, and no pupil had to walk over two miles. And strange to say the school population had increased by seven hundred. This state of affairs had existed for four or five years but the board did not know it until the supervisor called their attention to it.

2. District supervision improves the school attendance. By directing the efforts of the truant officer, and by gaining the co-operation of parents and teachers, the thirty-six district supervisors for the year 1911-12 were able to increase the average daily attendance by 14 per cent

above the average for the whole state. A similar increase for the whole state would have resulted in bringing into the schools at least 25,000 boys and girls that were out of school for lack of proper attention. Aside from our duty to these irresponsible boys and girls, we must remember that the good taxpayers of West Virginia paid for the education of all these children.

3. The supervision of the teacher's work in the schoolroom has very greatly improved the quality and effectiveness of the teaching. From one-fourth to one-third of the rural teachers in West Virginia at any time are teaching their first school. Many of these new teachers are young, in addition to being inexperienced. One must see them trying to teach to understand how helpless they are and how greatly they need assistance. District supervision makes for them just the difference between "keeping" school and teaching school.

4. The district supervisors of West Virginia are doing fine service by holding regular bi-monthly or monthly teachers' meetings. At these meetings formalities are laid aside and the teachers engage in discussions of the problems that have been confronting them in their schools. One of the more skilful of the teachers is assigned to teach a class of real live boys and girls in order to give the less experienced teachers the benefit of observing good teaching. The work of the Teacher's Reading Circle is reviewed. One of the most helpful features of these meetings is the bringing together of work in written composition, drawing, and manual training for an exhibit of what has been done since the last meeting.

The district supervisors are doing many things that cannot be enumerated. Their work is nothing less than that of bringing order and system out of conditions that are more or less chaotic in the rural districts.

A study of these two state systems indicates strongly that supervision is working a revolution in the schools affected. The Oregon law affects fourteen counties, and twenty-five supervisors are employed besides the county superintendents. West Virginia has, for 1912-13, fifty-eight supervisors, who have under supervision about one-third of the rural teachers in the state.

In constructing a scheme for rural supervision it is recommended that in addition to an academic and professional requirement the supervisor be required to pass an examination, under the state superintendent, on agriculture and the supervision of the teaching of agriculture; that the supervisor be employed for twelve months in the year; that he

devote his time between sessions in the summer as supervisor of school gardens and practical agriculture on the farms in his district, and that his salary be supplemented by state funds so that the state may have more authority in directing his work, somewhat as is the plan in New York, except that the office of county superintendent be not abolished. The legal recognition of the county superintendent in the Oregon law is superior to the West Virginia law, but as a matter of actual practice the county superintendent in West Virginia not only directs the supervisor's work, he also virtually appoints the supervisor in most cases.

### **III. RURAL SUPERVISION IN NEW ENGLAND TOWNSHIPS AND UNION DISTRICTS**

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#### **I**

The Massachusetts law provides for the expert supervision of all public schools. It requires that all towns (townships) of \$2,500,000 or less assessed valuation shall unite in unions of two or more towns, for the purpose of the employment of a superintendent of schools. There must be not less than twenty-five or more than fifty schools in a union at the time of its formation. Any four towns (townships), however, may form a union, though the combined number of schools may be less than twenty-five. The superintendents are elected by the school committees of the union from a list of candidates certified as qualified by the State Board of Education. The minimum salary is \$1,500, of which the state contributes \$1,250. The term of office is three years.

Although the law makes the superintendent of schools the executive officer of the School Board, each superintendent really exercises such powers as the local authorities in their wisdom may see fit to confer upon him. In most cases they are allowed to examine, nominate, and direct teachers; to prepare or adapt courses of study; to supervise the daily programs of the schools; to attend to the grading and promotion of the pupils; to recommend, purchase, and distribute textbooks and supplies; and to have general charge of school property, attendance of pupils, and the enforcement of school laws. In fact, they usually have all the powers which it is desirable that they should possess.

The other New England states have modeled their systems closely after the Massachusetts pattern. This plan has three distinctive features:

It is professional in character.

It is largely supported by the states.

It gives each superintendent a small number of schools to direct.

Every rural superintendent has to pass an examination and receive a certificate of fitness from the state department before becoming



eligible for election by the local authorities. In Massachusetts the original certificate is for one year. Renewals are for one, three, or five years, the duration of the certificate depending upon the candidate's success in supervisory work. Most of the superintendents are college graduates (in Massachusetts about 80 per cent). Many have taken graduate courses in the educational departments of Clark, Harvard, Columbia, or other universities. Nearly all have had a more or less extended experience as teachers. Each state makes some provision for the training and improvement of the superintendent after he begins work. Massachusetts conducts a summer school for them. It also employs inspectors (agents), whose duty it is to visit the schools, to observe the manner in which the superintendent is meeting the problems of administration and instruction, to inspire, stimulate, and advise him, and finally to report on his work to the State Board of Education.

The liberal state contribution makes it easy for the unions to pay fair salaries. Connecticut pays one-half the salary, but not more than \$800 to any one union; Maine, twice the aggregate sum paid by the towns, in no case to exceed \$800; Rhode Island, one-half the total salary of the superintendent, the state's share being limited to \$750; New Hampshire, one-half; Vermont, \$1,000, if the salary is \$1,250, and one-half of the amount of salary above \$1,250, the additional apportionment by the state to be restricted to \$300.

The small number of schools in a union makes possible a type of supervision unknown in any other section of the country. The superintendent may become really the principal or head teacher, and look after the details of administration and instruction in a way which is not approached in effectiveness in any place where the county, with its large number of schools, is the supervisory unit. Rural supervision in New England has aroused greater public interest in education, lessened the friction in school management, and has given the schools a broader and richer program, a more regular attendance of pupils, a longer school year, a more liberal supply of textbooks and educational material, and better schoolhouses and grounds. So strongly have its fruits appealed to the good sense of the people, that it is soon likely to become universal and compulsory in all of the New England states.

The administrative side of supervision has been so fully treated in university courses and professional literature, that the remainder of this paper will be devoted to a brief discussion of the rural superintendent

as a trainer of teachers: the need of such training; the preparation of the superintendent; suggestions as to the methods by which the best results may be secured. This is done with the firm conviction that the rural superintendent should put most of his time, thought, and energy into helping his teachers to become better teachers.

#### I. SUPERINTENDENT AS A TRAINER OF TEACHERS

*Need.*—The need of systematic training is very apparent where teachers are employed who are young, inexperienced, wholly untrained, or lacking in native capacity.

The young graduate of the normal school usually enters upon her work with enthusiasm and high ideals. Her training, however, has been incomplete because of her own immaturity, the wide range of subjects which the ever-increasing demands of the profession are forcing upon the normal schools, the shortness of their courses, and the inadequacy of the facilities for practice teaching. The superintendent of schools should continue the training begun in the normal school.

One principal, who keeps track of the graduates of his normal school, writes: "The normal-school graduates need sympathetic and definite suggestions as to how to improve their work and to hold them up to the standard which they had when they left the normal school. Often they will start in well, but are left so entirely to themselves that they fall back into routine methods, when some specific suggestions from their superintendent would change the whole character of their work."

Close, intelligent, and sympathetic direction is also necessary if the teachers long in service are to maintain the highest standards of efficiency. Very few people in any occupation do their best at all times, unless conscious of the oversight of someone who appreciates their best efforts and is aware of their failures. This is peculiarly true of teachers, for the routine of the classroom tends to fix habits, to lessen adaptability, and, possibly, to deaden ambition. Teachers cannot stand still; they must advance or decrease in skill and power. All teachers will grow in effectiveness, if helped, instructed, energized, and inspired by a capable superintendent.

#### II. THE PREPARATION OF THE SUPERINTENDENT

To train the teachers while in service, the superintendent must be something more than a *school inspector*. As an inspector, he may view the work and, out of his wider knowledge, pronounce it excellent, fair,

or poor. Mere inspection does not, however, carry with it the idea of showing the teacher how to improve. Constructive supervision, on the other hand, possesses some of the qualities of foremanship. The constructive supervisor feels a false note in the schoolroom as keenly as a master musician does a wrong touch on the piano. Like the musician, he points out the mistake, and has the exercise repeated until every defect is removed, harmony is restored, and the execution is perfect. A school inspector may discover and recommend the removal of the poorest teachers. With unlimited money at his disposal, he may hire a few superior teachers. He does nothing, however, to make the average teacher more efficient. The work in his schools will always be mediocre.

The constructive supervisor will be quick to appreciate and commend the good. He will be as prompt to point out and correct a violation of the principles of sound pedagogy or anything bad in the details of the practice of teaching as he has been to sympathize with and encourage the best efforts. Such a supervisor will bring the whole teaching force to a high standard of efficiency. No other type of supervision can ever be very effective in the New England unions where teachers' salaries are necessarily comparatively low.

To become a constructive supervisor and to have something of value to offer the teachers, a man should give his attention to the following lines:

1. He should fit himself to be really the head teacher, the master of the details of teaching reading, writing, arithmetic, and other subjects. He need not be appalled at the idea of mastering the many subjects that make up the curriculum of the modern elementary and secondary schools. He is not expected to know them all at the beginning of his work. He must learn them one at a time, and in the order in which he emphasizes them in the schools. The first year he should take one subject—possibly reading—talk about it in his teachers' meetings, give it a large share of attention in his visits, and gradually raise the schools to a high degree of effectiveness in handling this study. The next year he should take another subject. Each year, while keeping the old work up to the highest pitch of efficiency, he will concentrate upon some new line. In this way he will not only accumulate knowledge and capacity for helpfulness, but will be guiding his teachers step by step—the only way in which they can progress to higher efficiency and greater usefulness.

2. He should study children. He will find it a decided advantage if he has taught young children before beginning supervision. He

certainly should study the psychology and pedagogy needed in such teaching. He should continue to observe children and measure the work of the schoolroom by its effect upon them. It will help him to keep sympathetic and intelligent relations with the children, if he himself teaches whenever favorable opportunities offer.

3. He should set aside time for the study of the journals, magazines, and books relating to his profession.

4. He should keep informed as to the spirit and aims of the nearest state normal school, and especially of the methods followed in the training departments.

5. He should spend at least one day each month in visiting the schools in other towns or cities; the town of A., because elementary agriculture is there taught exceptionally well; the town of B., for the geography and history; C., for the free-arm, muscular movement writing, or to observe some other notable feature.

6. He should gain inspiration and power by attending summer schools, superintendents' conferences, and general educational meetings.

### III. METHODS OF HELPING THE TEACHER

The superintendent will assist his teachers chiefly by his visits to the schools, by teachers' meetings, and by reading clubs, or by other forms of directed reading.

1. *Visits to the schools.*—The superintendent should minimize and so arrange the other duties of his office that he may spend most of the time during school sessions in the schoolrooms, giving his personal help and direction to the teachers. There is no other way in which he can really come to know his schools. Plan books, records, and the endless reports with which many teachers are burdened are but a poor substitute for a visitation. The accurate knowledge gained by frequent visits should enable a superintendent to diagnose a bad school situation and prescribe the remedy with greater accuracy than that with which the physician is able to deal with his cases. The superintendent should make visits of an hour or an hour and one-half in each school, once in two weeks. A shorter visit is rarely desirable; a longer one is unnecessary. New teachers should be visited at least once a week until safely established. The visits to a school should not be made at the same hour of the day, or invariably on the same day of the week. It is better not to have a fixed day or days for the several towns in a union, unless it is necessary to keep regular office hours in each town. The

superintendent should make his schedule sufficiently flexible to permit him to give his help where and at the time it is most needed.

*a) Using the visit to improve the conditions under which the teacher works.*—The superintendent should observe the conditions as to heat, ventilation, light, seating, cleanliness, sanitation, and everything that affects the health, comfort, happiness, and convenience of the school. He should see that the teacher corrects those defects for which she is responsible—regulating the ventilating system, adjusting shades and seats, and maintaining pleasant relations with pupils and parents. He should make a record of those things which should be brought to the attention of the school committee, and later press gently, persuasively, and persistently until the board takes action. In this way, the superintendent's visits will result in a steady improvement of the conditions under which the teachers work.

*b) General help.*—The superintendent should note the progress of each class and exceptional children; search out the causes of every case of retardation; examine attendance records; discover the reasons for faulty management or discipline; and get at the actual conditions in each school. His broader experience, observation of the treatment of similar problems in other schools, and study of the literature of education should enable him to give sensible and pertinent advice in these matters to the harassed teacher.

*c) Help in making the program.*—The program of the school should be studied carefully. Inexperienced teachers always need help in program-making. The following are a few of the tests which should be applied to the program:

Does it include all the lines of activity desired?

Does it provide work enough each day for every group of pupils and for the brightest children?

Are the recitations so distributed as to give the pupils suitable intervals for study?

Is provision made for educational seat work for the younger children?

Is the program arranged to give the beginners the reading when the children are at their best?

Does it reduce the number of recitations where desirable by a combination of classes?

Does it provide for the conduct of two or more written spelling exercises at the same time?

Does it provide for hearing two or more small classes in arithmetic simultaneously—one grade doing written work, while another is explaining a problem or reciting orally?

Does it provide for an occasional written exercise for one grade, to allow time for a longer teaching exercise in another grade?

Does any part of the program include a period of forty or forty-five minutes to be allotted to two or three grades according to their varying needs—a five-minute recitation for a grade whose seat work can be tested and a new lesson assigned in that time; and the remainder of the period for the development teaching required by the taking-up of a new subject in another grade?

Are the time allotments in the program justified by the conditions existing in the school?

*d) Improving the teaching.*—The superintendent should observe closely the teaching of each exercise, to see that the methods and devices used are pedagogically sound and adapted to the age and development of the children; to see that they are economical of time and energy; to see that the teacher connects new subjects of instruction with the child's knowledge and experience; to see that she is vivid in her teaching; to see that she emphasizes the vital things and does not give too much prominence to unimportant details; to see that she gives enough drill on the purely mechanical parts of reading, the number combinations, and other work in which memory is the chief factor; to see that she reaches every pupil.

In a union of large area with poor transportation facilities, it may be impossible to hold many meetings, and the visits may be about the only way in which the teachers can be instructed. In such cases, the superintendent can present during his visits the successive steps to be taken in teaching any phase of reading, writing, and arithmetic, or the methods to be used in history, geography, or other subjects.

*Example.*—The Ward System of reading may be taught so well to an inexperienced teacher in a few visits that exceedingly good results will be obtained.

*1st weekly visit.*—Give instruction and illustrations for teaching objectively, in sentences, the name words of the first vocabulary of eighty-three words.

*2d weekly visit.*—Have a new word taught. Give directions and illustrations for teaching a verb and presenting sentences in which all the words are known to the children.

*3d weekly visit.*—Hear the class go through the steps already presented. Make corrections and have the exercises repeated until executed perfectly. Give the order and method of teaching the thirteen phonograms.

*4th weekly visit.*—Have every step repeated. Commend the good and suggest improvements.

*5th weekly visit.*—Have a new word presented to the class. Hear a review of all words learned from drill cards. Hear the phonograms already taught, and as much sentence reading as time will permit. Teach the "blend." Say to the teacher: "I hope to have Mr. A. of the School Committee hear this class next week. Please be ready to show him how the Ward System should be taught."

*6th weekly visit.*—Have the teacher show Mr. A. or some other visitor how new words are taught, the devices for word and phonetic drills, the "blend" or word-building by means of which the children gain the power to get new words for themselves, and sentence reading with fine expression. Be sure that the sentence is made the unit, and word naming is never allowed.

If this demonstration for the benefit of a visitor is a success, the teacher will feel a pride in handling every detail with the highest skill and the pupils will advance rapidly.

Continue the general plan here outlined until the teacher has mastered the system. Use visitors and other means to make the teacher anxious to use the system a little more effectively than others have done.

*e) Making suggestions to the teacher.*—As soon as possible establish relations that will permit of a frank discussion of the methods and work of the teacher. The teacher will welcome criticism offered in a kindly and sympathetic spirit if she sees that she is being helped and strengthened. Suggestions may be made at recess or at the end of the session, and new ideas as to methods and devices may be presented during the exercise to which they may be applied. A carefully prepared teaching exercise may be given, or pupils may be questioned by the superintendent, to furnish models for the teacher.

General criticisms should be avoided. If the superintendent says, "The reading is very poor," but fails to point out the particular in which it is at fault, or to offer a remedy for the weakness, he merely discourages the teacher without helping her to improve her work. A clear, definite statement of the trouble and a suggestion for its cure, however, will encourage the teacher and help the children.



Illustrations: "The children do not know the 'sight' or 'stock' words. Drill on the 'sight' words, and they will read without hesitation."

"The reading-book contains too many new words. Young children need a great deal of easy reading. I would suggest using———" (naming the book).

2. *Teachers' meetings.*—Teachers' meetings may be made an effective means of giving inspiration, promoting professional improvement, and furnishing instruction. These meetings should never be called, however, unless the superintendent is sure that there is a message ready for the teachers. Aimless meetings, or conferences which settle nothing, are worse than useless, for they not only are a waste of time, but they serve to lessen respect for the ability and efficiency of the superintendent. For this reason it is safer for the young superintendent to hold meetings as occasion requires, leaving the planning of the regular yearly schedule of meetings to the superintendent who, from experience, knows the needs of the teachers and who can take time for adequate preparation.

The number, time of holding, and character of the meetings must depend largely upon the size of the union, facilities for transportation, equipment and experience of the superintendent, and other conditions. The aim of general meetings should be to inspire, broaden the outlook, and advise in those matters which concern the whole force. The superintendent can usually call to his assistance in the conduct of these meetings a local physician for talks on the hygiene of the school, a dentist on the care of the teeth, an oculist on his specialty, a business man on the kind of education required for commercial life or some phase of business activity, a traveler, author, scholar, or professor of agriculture on some appropriate topic, and other superintendents, normal-school teachers, special teachers, and others on educational subjects.

Small groups, consisting of rural grade or high-school teachers, may meet to discuss matters which particularly affect them. This is the place for directions and conferences on methods and devices, program-making, and courses of study. Superintendents, normal-school teachers, and experts from publishing houses may be used to advantage in these meetings. Teachers who are doing exceptionally well may also be invited to present model lessons. Such lessons may be written out by the teachers, and after being inspected and approved, rehearsed with pupils before the superintendent. The lesson may then be given with another group of children before the other teachers.



3. *Directed reading*.—The value of teachers' reading circles, magazine clubs, and other organizations for professional study and improvement, have been too little appreciated in the past. The plans outlined below are now in successful operation in various parts of the country. The adoption of one of these plans, or a combination of two or more of them, will be of advantage to any superintendency union.

First Plan: A voluntary organization of the teachers is formed, with a president, secretary, treasurer, and rules for procedure. Three books are selected, to be read by the teachers during the year. One book is usually chosen which deals with general pedagogical principles, as Bagley's *The Educative Process*, Murray's *How to Study*; one with the subject-matter and pedagogy of some particular topic, as Davenport, *Education for Efficiency*; Massachusetts Board of Education, *Agricultural Projects for Elementary Schools*; Warren, *Elementary Agriculture*; some books on the Methods of Madame Montessori; and one on some biographical or literary subject, as the life of Horace Mann, Froebel, or Pestalozzi. The books are owned by the teachers. The work is divided into as many parts as there are months in the school year. The first part is assigned to the teachers, to be read, considered, and finally discussed at the monthly meeting. The meetings are held evenings or Saturday mornings at the superintendent's office or home, or in some cases at the homes of the teachers. If held in the evening, light refreshments and a social hour sometimes follow the study period.

Second Plan: Topics for study are chosen by the superintendent or a committee of teachers. The material bearing on these topics is divided among the teachers. One of these references is assigned to each teacher to read and report upon at the monthly meeting. By this plan a wider range of information is gathered, and it is possible for each teacher to present something entirely new to the other teachers in the discussion.

An Act of the Massachusetts legislature (1911) provides that "Any free city or town public library may lend its books or other library material to any other free public library in any city or town under such conditions and regulations as may be made in writing by the Board of Trustees or other authority having control of the library so lending. Any city or town may raise money to pay the expense of so borrowing books and other library material from the library of any other city or town."

The Library Commission, State House, Boston, will furnish lists of the best books published on any topic, and also give the names of

libraries willing to assist the smaller libraries by loaning books. This makes it possible for the smallest free public library in the state to supply any book called for by its patrons. The School Department of any town would be justified in assuming the expressage if provision has not been made by the town for the payment of such charges by the local library. The Woman's Educational Association, Boston, Mass., will loan selected libraries upon application.

A few topics for study:

Organized games.

Vocational guidance.

The relation of agriculture, cooking, and sewing to life and to the other school activities.

The responsibility of the teacher for the health of her pupils.

Language teaching for (a) accuracy in spelling, punctuation, capitalization, and construction; (b) conciseness, discrimination, and ease in expression.

Third Plan: One or more of the correspondence courses given by the North Adams State Normal School are taken by the superintendent and teachers. The courses include work in history, English, practical arts, and other subjects. The books are furnished by the Normal School without expense to the students. Many of the questions and suggestions deal directly with the school problems of the local community. The work is discussed at monthly meetings.

Fourth Plan: Two educational magazines, *The World's Work*, *The Literary Digest*, *The Outlook*, or *Harper's Monthly*, are read, reported upon, and discussed at the monthly meeting.

Fifth Plan: Three books are studied, as in the first plan, the superintendent questioning the teachers on the subjects treated on his school visits. This plan may be used in communities where it is practically impossible to hold meetings.

## II

The superintendent with a thorough knowledge of the technique of education should, on his visits to the schools, in his teachers' meetings, and by the directed reading courses, gradually train the teachers to a high degree of efficiency:

I. In the teaching of reading, writing, number, and formal language.

II. In the teaching of geography, history, physiology, and other subjects in which somewhat similar development methods are desirable.

III. In the teaching of the practical arts—paper folding, cooking, sewing and mending, knitting and darning, agriculture, wood, metal, and leather working.

IV. In the teaching and directing of organized games and folk-dancing.

#### INTRODUCTION

I. The chief work of the elementary schools is to furnish the child with a mastery of the three R's, the tools by which he may educate himself. These subjects should be taught as quickly as the natural development of the child will permit, and so effectively that he will use them automatically. They are somewhat formal in their nature. The processes of teaching them have been analyzed and so arranged as to eliminate nearly all waste efforts. To secure the highest efficiency in teaching them, one of the definite, complete standard systems dealing with these subjects should be adopted and closely followed.

The "Aldine," "Progressive Road," and "Ward" methods of teaching reading, the "Gray," "Bigelow," and "Walters" plans for number work, and the "Palmer," "Natural," "Whitehouse," and "Ginn" systems of penmanship are worthy of consideration in making a choice. Each of these systems is pedagogically sound. The details have been thought out carefully, the exercises logically arranged and accurately graded, and devices planned to arouse and maintain the interest of pupils. A manual of instructions accompanies each system. These manuals are so clear and definite in their directions that an intelligent and painstaking teacher will be able to get good results without other guidance.

A superintendent who understands one of these systems and possesses some elements of leadership can secure nearly uniformly excellent work from all of the teachers. Each of these systems has its peculiar advantages and each has its faults. For example, it might be possible to select more desirable rhymes or cumulative stories than those used in the "Aldine" and "Progressive Road to Reading."

However, until someone does make such a selection, present a comprehensive plan for using them, and print a set of books whose vocabulary will be covered by the rhymes or cumulative stories and the accompanying phonetic drills, the wise superintendent will turn a deaf ear to the critics. He will select the best systems of reading, number,

and penmanship published, master them himself, and teach the teachers how to use them effectively.

By following this policy, one superintendent has developed a free-arm muscular movement writing system to such an extent that the pupils are able to write legibly and elegantly in one minute and thirty seconds the twenty spelling words for which in many schools a twenty-minute recitation period is allowed. Another superintendent accomplished as much in eight weeks with beginning classes in reading as some others in two years. Still another has schools in which we find the third grades have the number concept as highly developed and a more complete knowledge of the number combinations than many fifth and sixth grades.

#### READING

The first step in introducing the "Aldine," "Progressive Road to Reading," "Ward," or whatever system may be selected, is to secure a specialist from the publishing company to present the subject to the teachers. The manual explaining this system should then be placed in the hands of the teacher for study. This should be followed by informal conferences in which the superintendent, having completely mastered the subject, should give definite instructions to his teachers how to begin the work. The instruction should be along two lines, (1) general directions for handling beginners in reading; (2) directions for teaching the system chosen.

1. A few illustrations of the kind of general direction, about which there is a substantial agreement among well-equipped superintendents and skilful teachers, are given below. The superintendent must discover the principles upon which the best practices are based by getting into close touch with the children, by observing the work of good teachers, and by conferences with superintendents and others. He must explain these principles to the teachers, and in his frequent visits to the schools see that his directions are followed.

*Illustrations.*—(a) The length of the recitation should be from ten to fifteen minutes, with two or more recitations daily. This time should be devoted to reading, and should not be taken up with the phonetic drills. Such drills may be better given in separate exercises.

b) The recitation should occur early in the session, when the children are at their best. A few teachers still give the number work precedence

over the reading. Reading, however, is entitled to the best place in the program, as the chief subject of the language group of studies which is most important at this stage in the development of the child.

c) Not more than ten or twelve children should be placed in one division. In any case, it is usually necessary to divide the entering class into two or three groups, on account of the differences in the ability of the children. If the school contains several grades and many classes, it will still be better to make these divisions of the beginners, so that the work of each group may be adapted to the development of the children in it. Progress will be more rapid with such an adaptation of the work, though the time devoted to each group be shortened.

d) The classes should be gathered about the teacher, standing or seated in kindergarten chairs. Close proximity strengthens the influence of the teacher, brings the children into a favorable position for black-board or chart work, and enables the teacher to sense the individual needs of the pupils and supply the help required.

2. The second line of instruction should include equally minute directions for (a) teaching the first vocabulary; (b) dramatization; (c) seat work relating to reading; (d) devices for word drills; (e) phonics; (f) beginning to read from books; (g) order in which reading material should be used; (h) amount to be read.

The following brief discussion of a few phases of the subject may suggest some of the points upon which the superintendent should give explicit directions.

*Manual.*—To secure the best results with any system, it is important that the method be followed as outlined in the manual. A mastery of the manual is essential, in order that the purpose and value of the various processes may be clearly understood and thoroughly appreciated. Frequent teachers' meetings, in which the various phases of the work are discussed and experiences exchanged, are also desirable.

*Story.*—The work begins with a story in the "Aldine" and "Progressive Road to Reading." Every good primary teacher must be a good story teller. If she has not learned that art, she should be encouraged to try at once. Practice will generally give the teacher power in this direction. Above all, insist that she keep in mind the purposes of the story, which are to arouse the interest and enthusiasm of the child and put him in a favorable attitude for his own reading, which is to follow. Incidentally, it facilitates the memorizing of the rhyme or cumulative

story around which the story centers, and in order to make this effective, the rhyme or cumulative story should be given proper emphasis in the telling. Many variations of the stories may be given, each utilizing the *exact* wording of the rhyme. Other stories may also be told if the teacher keeps in mind the object for which they are used, and does not tell them for mere entertainment.

*Initial stock of sight words.*—The memorizing of the rhymes or cumulative stories furnishes the child with the initial stock of sight words. The stories, the rhythm, the arrangement of the words, pictures, and dramatization give these sight words a vivid meaning and help to fix them in the minds of the children. As fast as the rhymes are taught, the charts containing them should be hung from the chalk trays or the rhymes may be written on the blackboard. Having memorized the rhyme, the teacher should be told that she should rarely, if ever, tell the child a word which can be found in the rhyme. He should always be led to find it for himself, thus developing self-reliance.

*Pictures.*—The pictures in the books and on the chart may be used to arouse the interest and enthusiasm of the child, stimulate his thought, increase his understanding of the story, and improve his expression in reading. Other pictures of children and of things in which children are interested may be collected and used with advantage.

*Dramatization.*—Dramatization is another effective means of securing a better understanding of thought and good expression. The teachers must be made to see that dramatization is a means and not an end in itself. It should be natural and spontaneous. Used intelligently, it will be found very helpful.

*Non-English-speaking children.*—With non-English-speaking children, a liberal use of objects, pictures, action sentences, and the right kind of dramatizing will soon establish a working vocabulary.

*Phonics.*—Most manuals of reading present complete systems for phonetic teaching. No part of the work is more important, and no part is more liable to be slighted by teachers who are having inadequate supervision. Each step should be studied by the superintendent, discussed with the teachers, and watched in operation in the schoolroom. If this is done, nearly uniform results will be secured in all of the schools and the children will gain the power to get new words for themselves. Begin with daily drills of initial consonants. Every child should be led to recognize the consonants or combination of consonants at a glance.

Poor or insufficient drill at this point will cause trouble later. When the time arrives for the teaching of phonetic families, see that the teacher follows the instructions given in the manual as to the order of taking up the series and for the use of the phonetic chart. Not only see that these instructions are observed by the teacher, but see that she understands the use of the type word and realizes the importance and value of giving all the drills suggested, and as much more as are needed to make every child instantly recognize every word in any series that has been presented to him.

*Mechanics.*—While reading should never be made mechanical, a certain amount of drill on the purely mechanical phases of reading is absolutely necessary, and this, like everything else that is worth doing at all, should be done thoroughly. Much of this form of drill is best given in exercises entirely distinct from the reading lesson itself. Separate periods, though they may be short, will answer for this work. Where a multiplicity of classes makes this next to impossible, a portion of the reading lesson must be set apart for this drill. In the first two grades, every reading lesson should be prefaced with a thorough and rapid drill of sight words. During the primer period this should include the entire vocabulary of the child. The new words which have been presented to the child by the story and in the rhyme are first drilled upon from a blackboard. They are then added to his previous stock of sight words and abundant drill given by sight word cards. This cannot be done too thoroughly.

*Silent reading.*—Silent reading is vastly more important than oral reading. All oral reading should be thought getting, and thus lead to enjoyment in silent reading. Frequent exercises in silent reading should be given in grades above the third. One method of conducting such an exercise is to give the class new material—books, magazines, or newspapers—and after allowing time for a silent reading of the paragraph or page, books are closed and the children are asked to express the thought in the fewest possible words. In the intermediate grades silent reading contests may be used to arouse the competitive and play instinct. Sides may be chosen and credits given to the quickest and best reports.

*Training for expression in the upper grades.*—A good way to improve the expression is to use two recitations a week for drill on a few choice selections. The reading of these pieces should be studied as carefully



as is the declamation in preparation for the prize speaking contest. The selections creditably read serve to establish standards by which the pupil judges his own and others' efforts. Thorough training on a few selections will improve all the oral reading.

Another way to secure good reading is occasionally to have two, three, or four pupils read or recite to the class or school the articles in which they have found pleasure. The children will make their own selections from newspapers, magazines, or books. This plan presents the conditions favorable for good oral reading—an interested reader, attentive listeners, and a selection suited to the age, understanding, and taste of the company.

### WRITING

Experience is demonstrating the fact that business writing may be successfully taught in the public schools. The steps necessary to success are: (1) the adoption of a good system; (2) mastery by the superintendent; (3) study and practice by the teachers; (4) systematic work in the schools.

That mastery by the superintendent is an essential thing is shown by the following statement by an energetic, capable, Massachusetts superintendent: "I introduced the ——— system of writing. The work dragged and the results were discouraging. I learned the system myself and gave lessons in the schools and at the teachers' meetings. In a few months the writing had improved wonderfully and teachers, pupils, committees, and parents were enthusiastic."

After the teachers understand the system and begin to get good results from children, the superintendent can arouse a proper spirit of emulation by collecting and exhibiting samples of the writing of individuals, grades, or schools. He must continue to manifest the keenest interest if the work is to be kept up to the standard. Superintendent C. says: "I used the ——— system of writing for three years with excellent results. Then I became interested in other things and ceased to call for samples of writing or observe writing lessons. Near the close of the year I awoke to the fact that in consequence of my neglect the writing of the pupils had deteriorated 50 per cent."

It is now comparatively easy for a superintendent to start the free-arm muscular movement writing, for four of the state normal schools are graduating students who are capable of teaching the writing in a



school, or with a little help, of taking charge of the writing in a building or instructing the teaching corps of a town in the subject.

#### NUMBER

One of the several highly developed number systems should be chosen and taught to the teachers in the grade meetings and in the school visits of the superintendent. The ease with which this may be done is shown by the analysis of the Gray System given below.

*Explanation.*—The aim of the Gray System is to give the child true concepts in number and a knowledge of the so-called “number facts” and to make him, so far as possible, self-educative in the matter of acquiring them—to provide a means of learning through doing.

In form, the method is objective. It provides seat exercises in counting so arranged that the child makes and uses again and again objective and written expressions of “number facts.” Through this work the child gradually comes to remember one after another of these “facts” and acquires clear and accurate number language and imagery.

*First step.*—The first step in the method (*Manual*, chap. i) is the development of the oral, written, and objective language of the  $+$  and  $\times$  “facts.” This is *language* work pure and simple. The author assumes that before the child begins to learn that  $2+3=5$ ,  $3\times 2=6$ , etc., he must know what  $2+3$ ,  $3\times 2$ , etc., mean objectively. This step requires six to eight weeks. When it is completed, the child is ready for seat work in the construction of expressions in which that language is used.

*Second step.*—(*Manual*, chaps. ii and iii.) This requires about four to six weeks to complete, consists of seat work in  $+$  and  $\times$  language. Its aim is to give the child a ready knowledge of the language through experiences in using it accurately. There is no memory work, no recitation work, connected with it. If the objective work is done accurately and afterwards written correctly from the objective work on his desk, the purpose of the work is being fully served.

*Third step.*—(*Manual*, chap. iv.) The child is given seat objective work in which he uses this  $+$  and  $\times$  language. The aim is to give him counting exercises the character and form of which lead him to discover and rediscover and remake the “number facts” again and again until they begin to find a place in his memory.

*Fourth step.*—In the same manner use is made of “take away.”

*Fifth step.*—"Has how many."

*Sixth step.*—Tens language.

*Seventh step.*—Tens counting.

*Eighth step.*—Partition language, etc.

Caution: A most important part of the system—a part that, if neglected, would leave the work barren of results—is the daily oral recitation work called "memory tests" (*Manual*, chap. v) which begin after one or two weeks of work under the third step. These are oral exercises in which, in response to questions, the pupil tells the teacher what he remembers of his counting experiences. The more often he is given an opportunity to relate his experiences, the more indelibly fixed in his memory the experiences become.

As each new counting step is taken up (take away, has how many, etc.) these daily memory tests are broadened to include that subject. As the work advances, all past experiences are included in these drills, no line of past work being overlooked during the year for more than a few days at a time. It is the teacher's means of fixing indelibly in the child's memory what he has discovered in his seat counting work. Without such drills many of the "facts" would be but fleeting visions soon to be forgotten.

#### FORMAL LANGUAGE

The generally accepted idea in language teaching is that ease and facility in oral and written expression be developed before much attention is given to spelling, punctuation, capitalization, and grammatical construction. Stories, plant and animal studies, games, the manual activities, and other means are used to fill the child with thoughts which he is so eager to express that he looks upon the oral or written language of the school as an opportunity and privilege. Fixing his thought upon the mechanics of language is believed to lessen his pleasure in, and retard his power of, expression. Accuracy may be promoted without interfering with freedom:

1. By making the most of the child's imitative instincts. He should never see an incorrect sentence, or, if it is possible to prevent it, hear one.

2. By giving dictation, language drills, or other drill exercises to fix habits of good expression at periods distinct from the recitation which is devoted to the study of literature or expression.

II. In the teaching of geography, history, physiology, and other subjects in which somewhat similar development methods are desirable. To teach these subjects in the best way, the teacher should know children, be familiar with the subject-matter, and understand the pedagogy of each study. Good courses in a state normal school are the best preparation for this kind of teaching. Experience under wise supervision has fitted many to do strong work in these lines. A superintendent can help the teachers materially by studying with them the pedagogy of these subjects and the methods and devices used in presenting them. Good lectures or courses in reading will also serve to broaden the outlook of the teachers and increase their ability to interest and instruct the children.

Carefully prepared model lessons given by the superintendent or teachers will set standards which will be imitated and improved upon by other teachers.

III. In the teaching of the practical arts—paper folding, cooking, sewing and mending, knitting and darning, agriculture, wood, metal, and leather working. Each year the manual activities are assuming a larger share of the school program. The schools of Gary, Ind., devote half time to them and still keep their children up to the grade in the book work. All progressive school systems give them a place in the curriculum. Rural and village school programs should allow at least two hours a week of the teacher's time for these subjects. The children are so interested in them that they will study their lessons diligently to earn extra time for the manual work. They should be encouraged to do this. Any child will teach himself much if given the opportunity to express his thoughts with his hands in a creative way. These subjects appeal strongly to the children. The knowledge acquired in their study is of much value in itself. It is excellent material for educational purposes, tends to give pupils the right attitude toward manual labor, and helps to bring about sympathetic relations between the home and the school. All that is needed to supervise this work effectively is interest in the subject, fair intelligence, a desire to serve the community, and a willingness to study a few books on agriculture, courses of study in cooking, and any one of the several books which give explicit directions for sewing.

#### BOOKS ON COOKING

*Domestic Arts Book*, North Adams Normal School.

*The Boston Cooking-School Cook Book*, Little, Brown & Co.

*Elements of the Theory and Practice of Cooking*, Macmillan.

## BOOKS ON SEWING

*Goodwin's Course in Sewing* (3 vols.), Frank D. Beattys & Co., New York.  
*Scientific Sewing and Garment Cutting*, Silver, Burdett & Co.

## BOOKS ON AGRICULTURE

*Agricultural Projects for Elementary Schools*, Massachusetts Board of Education.

*Elementary Agriculture*, Hatch & Hazelwood; Row, Peterson & Co., Chicago.

IV. In teaching and directing organized games and folk-dancing, progressive superintendents are making an increasing use of the play instinct in the educative processes.

Game	Reference	Author	Publisher
Three Deep Herr Slap Jack Black and White Partner Tag Beast, Bird, Fish Hound and Rabbit Club Scratch Muffin Man Gardener and Scamp Animal Blind Man's Buff Circle Zigzag Over and Under Relay	Games for Play-ground, Home, School, and Gymnasium	Jessie H. Bancroft	Macmillan
Vis-à-vis All Up Guess Ball	One Hundred and Fifty Gymnastic Games	Carrie A. Harper	George H. Ellis, Boston
Simon Says Weathercock Have You Seen My Sheep? Cat and Mouse Center Base	Education by Plays and Games	George E. Johnson	Ginn & Co.
Runner's Choice Corner Ball Last Pair, Pass	Indoor and Outdoor Gymnastic Games	Maria Grey	Freidenker Pub. Co., Milwaukee, Wis.
I See You Rabbit in the Hollow	The Folk-Dance Book Popular Folk-Games	G. W. Crampton Mari R. Hofer	A. S. Barnes, New York A. Flanagan Co., Chicago

Organized games are made to insure healthful and pleasurable activity for all of the children. School grounds are being equipped with

swings, teeters, sand pits, tether balls, volley ball outfits, croquet sets, and other simple and inexpensive apparatus. Most of the apparatus may be devised and made by the pupils under the direction of the teachers.

Games are made the means of teaching manners, self-restraint, regard for the rights of others, and in short, bringing about those right relations between children which constitute good morals. Some superintendents are using play to establish habits of correct expression and action, and even in the acquirement of knowledge.

Organized games and folk-dancing should supplement, not supersede, free play. They should form a part of the physical exercises given during school hours, and of the plays of the recess and noon intermissions. Supervised play is almost a necessity when children spend the noon hour on the school premises.

The names of a number of games, with a list of the books in which they are described, are given on page 48. Some of these games are suited to the schoolroom, others to outdoor use. Appropriate ones should be selected and discussed, and the teachers encouraged to make the most of this approach to the child's mind and heart, and of this means of promoting happiness and healthful development.

IV. WORK OF THE STATE SUPERVISORS OF RURAL SCHOOLS IN THE SOUTH

WALLACE LUND  
Southern Education Board, Washington, D.C.

The southern states between the Atlantic and the Mississippi expend annually about thirty millions of dollars upon their rural schools. Over twenty millions are paid to teachers. It has been estimated that 25 per cent of this can be counted as waste due to the lack of supervision. The fact we have to meet is, that, as a rule, the individual schools resulting from this vast expenditure are wholly inefficient. To quote Mr. T. J. Coates, state supervisor of rural schools in Kentucky, "We have been trying for nearly one hundred years to develop rural schools without supervision and have failed."

But how create the efficient school? As a step in this direction state supervisors of rural schools were appointed in Virginia, North and South Carolina, Tennessee, Florida, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Kentucky, and West Virginia. These supervisors are legally appointed state officials in the departments of education, who have charge of rural-school administration and upbuilding under the general oversight of the state superintendent of public instruction. The office is permanent, so that the efficient supervisor can devote his life to the rural schools.

The problem that confronted the state supervisors was one of great magnitude. Setting forth this problem in a tabular form we have:

TABLE I  
NUMBER OF WHITE RURAL SCHOOLS IN THE GRAIN BELT\*

	Number of White Schools	Number of Schools Having only One Teacher	Percentage of Houses with only One Room	Average Area Covered by Each Rural School
North Carolina.....	5,156	4,018	78.0	9
Virginia.....	6,708RT	5,305	79.1	6
West Virginia.....	6,570RT	5,771	92.6	4
Kentucky.....	7,056	6,270	89.9	6
Tennessee.....	6,044	4,587	72.4	7
Totals.....	31,534	26,951	82.7	

IN THE COTTON BELT

South Carolina.....	2,399	1,986	83.0	12
Georgia.....	4,891	3,553	75.0	12
Alabama.....	4,427	2,590	64.6	12
Mississippi.....	4,256	3,192	75.0	11
Totals.....	15,973	11,321	72.2	
Grand totals.....	47,507	38,272	79.2	

RT—Rural and Town.

\*For our survey we took the states between the Potomac and Mississippi, excluding Florida on account of distinctive natural and educational conditions.

TABLE II  
CONDITION OF HOUSES

- a) Percentage of houses that are old..... 59
- b) Percentage of houses that are not painted..... 40
- c) Percentage of houses out of repair..... 30

TABLE III  
NUMBER OF WHITE RURAL TEACHERS, SEX, AGE, SALARY, AND LENGTH OF TERM TAUGHT

	Total No. of White Rural Teachers*	Percentage of Female Teachers	Average Age	Average Monthly Salary	No. Months Taught Previous Year
<i>Grain Belt—</i>					
North Carolina.....	7,113	70.0	27.2	47.44	4.0
Virginia.....	6,732	79.0	23.7	44.66	5.3
West Virginia.....	7,735	48.9	25.3	47.93	6.0
Kentucky.....	6,307	59.5	25.1	46.24	6.0
Tennessee.....	8,466	60.8	27.2	39.05	6.1
Totals.....	38,353	63.0	25.1	42.47	5.5
<i>Cotton Belt—</i>					
South Carolina.....	4,255	80.4	27.2	34.49	6.1
Georgia.....	7,691	72.1	26.1	49.42	4.9
Alabama.....	6,434	64.7	24.5	50.51	5.7
Mississippi.....	4,033	72.0	25.7	42.38	5.1
Totals.....	22,413	71.5	25.8	44.18	5.5
Grand totals.....	60,766	67.3	25.4	43.33	5.5

\*These figures are only approximately rural. The average monthly salary is rural in North Carolina, in the other states it is for both town and country. The average term is likewise approximately rural, except in North Carolina, West Virginia, and Kentucky.

TABLE IV

## STATUS OF THE TRAINING THAT RURAL TEACHERS HAVE HAD

	Percentages
a) Educated in the rural schools.....	60.4
b) Having attended town schools.....	21.4
c) Having attended some high school.....	46.4
d) Having attended some normal college .....	23.0
e) Having attended some college.....	30.4
f) Graduates of colleges.....	8.3

TABLE V

## PERCENTAGES OF WHITE CHILDREN ENROLLED WITH AVERAGE ATTENDANCE AND WITH NUMBER NOT ENROLLED IN THE RURAL SCHOOLS, 1910-1911

	Percentage of White Children Enrolled in Rural Schools	Average Attendance of White Children in Rural Schools	Number of White Rural-School Children of School Age not Enrolled
<i>Grain Belt—</i>			
North Carolina.....	73.7	47.21	109,392
Virginia.....	71.8*	45.60*	93,914
West Virginia.....	75.7*	51.28*	77,874
Kentucky.....	73.0	29.41	142,597
Tennessee.....	73.8	44.63	126,352
Totals.....	73.6	44.23	550,129
<i>Cotton Belt—</i>			
South Carolina.....	73.4	52.30	36,257
Georgia.....	72.7	42.91	86,412
Alabama.....	71.8	45.30	110,080
Mississippi.....	74.6	29.31	76,711
Totals.....	73.1	45.00	309,460
Grand totals.....	73.4	44.60	859,589

\*Rural and town.

We have then 44.6 per cent of the white children attending school 5.5 months each year, taught usually by a young woman with practically no training for her profession. The need, therefore, of an effective system of rural schools is apparent. How to accomplish this end is the question of prime importance with the state supervisor. In conference at Jacksonville, Fla., in April, 1911, these supervisors agreed that *three means should be employed to create the schools needed, viz., increased local taxation, consolidation with transportation, and demonstration schools at strategic centers.*



In carrying out these plans the state supervisor must enlist the county superintendents and at the same time train them for more effective service.

In the states with which we are dealing there are 971 counties with 79,939 schools. Thus the average number of schools per county superintendent is 82. In order to visit each school under his charge once a month, the county superintendent must visit at least four schools every school day and travel approximately 30 miles. If the visiting of schools is the only duty of the county superintendent, a study of the above will show that even this cannot adequately be done. But when we consider that a large portion of his time must be given to administrative detail, his visits to schools for purposes of supervision and instruction must of necessity be at long intervals and each visit of short duration.

Mr. Brogden, state supervisor in North Carolina, states, "It is a physical impossibility for any man to give adequate supervision to such a large number of schools scattered over an area ranging from 500 to 900 square miles."<sup>1</sup>

With the county superintendent the state supervisor visits the rural schools of the county, studying needs, assisting teachers, and making suggestions looking toward the betterment of the content of the schools. While in the county he takes an active part in local movements for efficient schools, which are usually efforts to levy a local tax or to increase a previous levy, to consolidate a number of weak schools into one strong central school, to secure a new building or to improve and equip an old one.

Reports from eleven states for six months in 1912 show that the state supervisors have aided in ninety local tax campaigns and in 103 consolidation efforts. They have furthermore stimulated 188 new buildings.

The teachers have been another point of attack by the supervisors in their efforts for efficient schools. From the beginning it was seen that the teachers must be instructed and directed so that their schools would meet the needs of their communities. To do this, Teachers' Manuals for the Elementary Schools were prepared by the state supervisors and issued by the departments of education. These give the teachers in detail the vital points in the work to be done as well as methods of putting these into practice. Another means employed in teaching the

<sup>1</sup> L. C. Brogden, *Consolidation of Schools and Public Transportation of Pupils*.

teachers is through the institutes. As far as possible these are made training schools for disseminating modern methods of teaching.

In Kentucky, Mr. Coates selects ten schools at strategic centers in each of ten counties, thus getting 100 schools distributed over the state which the county superintendents place under his immediate direction. These he calls demonstration schools. Mr. Coates visits these schools whenever possible, makes place for the teachers, and then directs the work throughout the session. Around these ten centers the other schools of the counties are grouped. Each group averages about seven schools. For these seven schools eight teachers are employed, one of these a substitute teacher. The substitute teacher takes the place of teacher "A," so that she can spend some time at the central school; then the substitute teacher relieves teacher "B," and so on, which enables each teacher in the group of seven schools to spend some time in the central school. These schools, becoming more and more effective, will naturally absorb the weaker schools around, or they will act as examples affecting all the schools of the county and finally of the state. A similar plan is being carried out in Arkansas and in sections of other states.

But these demonstration schools, however efficient in equipment and methods of teaching, cannot hope to influence the entire state within a short period of time, nor can the county superintendent, with the many demands upon his time, create schools equal to the needs of country life. We must therefore look farther for a solution. The county has its schools, its teachers, its equipment. Primitive teaching methods still prevail in the larger number of the rural schools. How to train the teachers already at work, therefore, was the most vital and urgent problem with which the state supervisors had to deal. This called for expert supervisors in numbers sufficient to reach all the schools in the county.

Mannington District, Marion County, W. Va., has the distinction of inaugurating expert supervision of rural schools in the South, a district supervisor being appointed in 1901. In the fall of 1910 county supervisors of teaching in the rural schools were appointed by the state normal schools in Virginia, North Carolina, South Carolina, Georgia, and Louisiana, their salaries and expenses being paid from an appropriation by the Peabody Education Fund. Although connected with the state normal schools, the work of these supervisors was done, in each case, under the general supervision of the State Department of Education.

For the purpose of studying the methods of supervision that had been

developed in West Virginia as well as for judging results, the state supervisors held a conference with a number of the district superintendents at the State University, Morgantown, June 26-30, 1911.

Since this conference, supervising teachers corresponding to the district superintendents in West Virginia, have been appointed in Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

These district superintendents and supervising teachers, although working under the supervision of the county superintendents, are largely directed by the state supervisor, hence they are his agents in developing both the inner life and outer activities of the school. They report directly and regularly to the state department or the state supervisor.

Mr. Tate, state supervisor of South Carolina, suggests that the county supervising teachers:

1. Assist in securing good teachers.
2. Look after grounds and buildings and equipment.
3. Get every pupil enrolled opening day.
4. Encourage teachers to read and study.
5. Develop country libraries.
6. Encourage the introduction of elementary manual training, cooking, homekeeping, and sanitation into the country schools.
7. Use the score card.
8. Look after the organization and conduct of the schools.
9. Train the teachers in effective methods.

Mr. Hanifan, in West Virginia, further suggests an exchange of compositions among the schools and industrial exhibits for district or county fairs. He also recommends concentration on a few definite means of improvement, noting that last year in the thirty-seven districts under supervision the attendance was increased 14 per cent.

In a bulletin on *Duties of County Supervisors of Schools*, Mr. Coates outlines similar activities and suggests that these supervisors:

1. Vitalize the common branches.
2. Socialize the common branches: make them fill immediate and real needs in the life of the people. Introduce vocational subjects.
3. Advertise the school among the people.

In addition to these activities it is the duty of the supervisors in some of the states to aid in organizing boys' corn clubs and girls' clubs for canning, for poultry, or for garden work. Generally they do all they can

to further these community activities and to relate them to the schools. They are also the school improvement agents in the counties. The following table sets forth the number of supervisors employed in the southern states up to October 1, 1912, and also the estimated number required to adequately supervise all of the rural schools in these states:

	No. Supervisors Employed up to October 1, 1912	No. Supervisors Needed in the States*
Alabama.....	1	177
Arkansas.....	1	240
Florida.....	..	121
Georgia.....	8	195
Kentucky.....	65	282
Louisiana.....	..	135
Mississippi.....	3	170
North Carolina.....	3	206
South Carolina.....	9	96
Tennessee.....	5	242
Virginia.....	7	268
West Virginia.....	58	263
Totals.....	160	2,395

\*Estimated number schools for each supervisor, 25.

In the foregoing we have seen the various agencies through which the state supervisor works for the betterment of the rural schools in the southern states. The following table of specific results reported by the superintendents of fifty-two counties taken at random, but where the state supervisors have done special work, will be of interest:

Total number of new buildings erected.....	226
Total number of additions to old buildings.....	40
Amount expended for new buildings and additions to old.....	\$670,455
Amount expended for equipment, school improvement, etc.....	\$ 52,618
Amount expended for sanitation.....	\$ 12,636
Number of special local tax levies.....	129
Total amount derived.....	\$340,230
Number of consolidations completed.....	78
Number of small schools consolidated.....	114
Number of wagons added.....	51
Number of counties reporting rural-school supervisors.....	11
Number of boys enrolled in corn clubs.....	978
Number of girls enrolled in tomato clubs.....	709
Number of libraries established.....	118

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Number of counties reporting industrial training in schools . . . . .	16
Number of school improvement leagues organized . . . . .	62
Number of schools reported with school gardens . . . . .	17
Number of counties reporting individual drinking cups in schools . . .	5

The above table clearly sets forth the wide range of activities in which the state supervisor is the guiding spirit. He is the pivot around which revolve all these campaigns for new levies and increased taxation, for consolidation and transportation, for expert supervising teachers and for general school betterment. It is to him that we look for the solution of the rural-school problem.

## V THE RELATION OF THE COUNTY SUPERINTENDENT TO THE SCHOOL DIRECTORS AND TO THE STATE DEPARTMENT OF EDUCATION

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It is the purpose of this article to give one method of co-operation of school officers in bringing about progress in one phase of their work. To try to cover the whole subject would require more space than can be allotted to this topic.

In Illinois the duties of both the county superintendent of schools and the superintendent of public instruction are advisory rather than directory. The theory of the system is that the school is a local institution. Its control is in local officials elected by the people of the district. The revenue is derived largely from local taxes levied by the local officers. The state's contribution is less than 5 per cent of the expenditures.

There are 10,638 districts maintaining one-room schools. The number of directors who administer the affairs of these districts is 31,914. A single county with 251 schools has 753 directors.

The county superintendent, having to visit these schools at least once a year and having to supervise these teachers, is a very busy man if he tries to do his duty. He cannot possibly do all that is expected of him with the assistance which is given him. His duty to be the official advisor and constant assistant of school officers has had to be done only when these officers called upon him for advice and assistance. The directors have come to recognize the county superintendent as the supervisor of the work of the school. The course of study, the organization of the school, the methods of teaching, the examination and promotion of pupils have been turned over to him, although the statute puts these things in the directors' hands.

The greatest deficiency in the one-room schools of Illinois is found in the housing and the equipment. As a general rule, these are worse than they were thirty years ago, although the school work is much better now than it was then.

The superintendent of public instruction is made by law the supervisor of all the common schools of the state and is to advise and assist the county superintendents, addressing to them, from time to time, circular letters relating to the best manner of conducting schools, constructing schoolhouses, and furnishing the same. When the present superintendent, Francis G. Blair, entered upon the duties of the office, he saw clearly that the improvement of the physical conditions of the one-room school and the creation of a more active desire for better schools presented a fruitful field of effort for the Department of Public Instruction and the county superintendent.

Instead of relying wholly upon circular letters, he determined to send a man out into the field to inspect the schools and to confer personally with the county superintendent, teachers, and the local directors. He did not wait for the legislature to supply him with additional help, but so divided the office work that one man was left free to go into the field. The legislature soon appropriated additional funds and there are now two supervisors of country and village schools devoting all their time to this work and they are out in the field while schools are in session.

**THE ILLINOIS PLAN OF CO-OPERATION BETWEEN STATE SUPERINTENDENT,  
COUNTY SUPERINTENDENT, AND SCHOOL DIRECTORS**

A pamphlet was prepared which contains chapters on the needs of the one-room schools: lighting, heating, ventilation, seating, library, apparatus, decoration; the schoolhouse, plans and specifications for a modern house, also specifications for remodeling old houses; school officers, their duties and powers; the teacher, the work peculiar to a country teacher; the organization of a one-room school. These topics are treated in great detail. The requirements for a standard school are set forth as follows:

**REQUIREMENTS FOR A STANDARD SCHOOL**

**YARD AND OUTBUILDINGS**

1. Ample playground.
2. Good approaches to the house.
3. Two well-kept, widely separated outhouses.
4. Convenient fuel-house.

**THE SCHOOLHOUSE**

1. House well built, in good repair, and painted.
2. Good foundation.

3. Well lighted.
4. Attractive interior decorations.
5. Good blackboards, some suitable for small children.
6. Heated with jacketed stove in corner, or a room heater and ventilator in corner, or basement furnace which brings clean air in through the furnace and removes foul air from room.
7. Floor and interior clean and tidy.

#### FURNISHINGS AND SUPPLIES

1. Desks suitable for children of all ages, properly placed.
2. Good teacher's desk.
3. Good bookcase.
4. A good collection of juvenile books suitable as aids to school work as well as general reading. Pupils' Reading Circle organized.
5. Set of good maps, a globe, dictionaries, sanitary water supply.

#### THE ORGANIZATION

1. School well organized.
2. Classification and daily register well kept.
3. Definite program of study.
4. Program of recitation.
5. Attendance regular.
6. At least seven months school.
7. Discipline good.

#### THE TEACHER

1. Education: The equivalent of a high-school course.
2. Must receive at least \$360 per annum.
3. Ranked by the county superintendent as a good or superior teacher.
4. Must read Teachers' Reading Circle books and attend institutes and meetings.

A diploma is offered to the school which meets these requirements and a plate is placed above the front door on the outside, bearing the words "Standard School," which can be read by those passing along the road.

The state supervisor and the county superintendent visit the school usually by automobile, the directors having been invited to be present. The school is inspected and everything that is right is pointed out. If there are deficiencies, they are noted and suggestions given as to what would be satisfactory. If the improvements have not been influenced by the pamphlet which has been sent to the directors, the deficiencies



usually are: heated with a bare stove in the middle of the room, desks too large for the children or so placed that the children are uncomfortable. If there is a library, it is composed of books far beyond the children and not at all related to their daily lives or school work. There may be no maps, globes, and minor supplies. The walls may need decorating or outhouses and yard may need attention.

Directors are told how a stove may be jacketed or, what is better, a room furnace installed; what desks are needed and how they should be placed; the kind of books that should be in the library. The teacher must be superior, good, or at least fair.

The county superintendent's judgment is relied upon, as only a half-hour can be spent at a school. Ten schools a day is the usual number visited.

As nearly as may be all parts of the county are visited in the two or three days the supervisor can spend in a county. The newspapers give the visit wide publicity and a great interest is aroused among the people, teachers, and children, especially if several schools are approved. The county superintendent and teachers as well as the children of the schools not standardized exert themselves to get the improvements needed so that their schools may also be recognized by the state superintendent as up to what they should be. The people generally learn that the standard schools are decidedly better and ask why their children may not be as well provided for. The improvement idea is contagious and when once started reaches every school. Many schools are improved which do not reach the standard at once, but will reach it as soon as the money can be procured.

After the visit of the supervisor, the county superintendent checks up schools and recommends them for diplomas. When interest has once been aroused he has great influence with boards of directors in getting the right things done. He invites them to meet him at the school. They go to see him in his office. He holds meetings of directors either at the county seat or more locally. He reports to them in writing the needs of their school to meet the standard set by the state. Teachers become ambitious to have their schools standardized. Good teachers refuse to accept a school when the equipment is not up to the standard. The plate appeals to the directors and the people. It is a careless community that is not reached when these signs begin to appear on other school-houses than their own.

### A SUPERIOR SCHOOL

The transformation of many of the most disreputable schoolhouses into most comfortable, cosy, attractive schoolrooms was most surprising. The willingness of directors to spend sums of money that the supervisor would have feared to suggest is no unusual thing. The influence of this spirit of improvement caught by directors and people has a decided effect upon the teacher, pupils, and the work that they do. They are proud of their reputation and try to live up to it.

The demands on the part of directors for the recognition of a higher degree than a standard school led the superintendent of public instruction to offer a diploma for a superior school. A standard school is one which has all the essential equipment, and a good or fair teacher. A superior school is one that has everything which a good teacher can use. The lighting must be exactly right, the decoration of the walls must be in good taste, the water supply wholly sanitary, the house must contain separate cloakrooms for the sexes. Manual training, domestic arts, and agriculture must be taught. The teacher must be a superior teacher; a good or fair teacher will not answer.

The purpose of this diploma is to influence the building of the new schoolhouses and the employment of teachers whose superior qualities are recognized.

### REQUIREMENTS FOR A SUPERIOR ONE-ROOM SCHOOL

Standard schools which have all the requirements specified in the following will be awarded a superior one-room school diploma.

#### GROUNDS

1. Playgrounds at least one-half acre and kept in good condition.
2. Level, covered with good sod.
3. Some trees and shrubs.
4. Well or cistern and sanitary drinking-appliances.
5. Two outhouses widely separated and well kept.
6. Good convenient fuel-house.

#### HOUSE

1. Ample schoolroom.
2. Separate cloakroom for boys and girls.
3. Outside painted, in good repair.
4. Inside walls properly tinted and clean.
5. Lighted from one side or from one side and the rear.

6. Adjustable windows fitted with good shades.
7. Floor good and clean.
8. Heated with basement or room furnace which brings in the pure and removes the foul air.
9. Sufficient blackboards, some within reach of little children.
10. Desks of No. 6, 5, 4, 3, 2 placed each size in a row properly spaced.

#### **FURNISHINGS AND SUPPLIES**

1. A good teacher's desk.
2. Two chairs.
3. A good bookcase.
4. At least eighty library books, ten suitable for each grade.
5. A good school encyclopedia.
6. Three dictionaries suitable for high-school, grammar, and intermediate grades.
7. Writing and examination supplies.
8. Two good wall pictures.
9. Set of good maps.
10. A good globe.
11. A set of measures and scales.
12. A thermometer.
13. All schoolbooks for teacher's use.
14. Crayon, erasers, pointer, coal hod, shovel, poker, broom, floor brush, and sweeping-preparation.
15. Wash basin, mirror, paper towels.
16. Combination daily and classification register, schedule of school property, including list of library and text books, monthly report cards.

#### **ORGANIZATION**

1. School classified and recorded in register.
2. Program of study and recitation.
3. Formal tests given, papers on file.
4. Certificates of membership and records of reading in Illinois Pupils' Reading Circle.
5. Provision for instruction in elements of agriculture, manual training, domestic arts. Agricultural and nature-study notebooks on file.

#### **THE TEACHER**

1. A high-school graduate and some training at a normal school.
2. Holds first-grade certificate.
3. Salary at least \$480 per annum.
4. Reads Teachers' Reading Circle books.

5. Attends county institute and teachers' meetings.
6. Makes all records and reports required by the county superintendent.
7. Ranked by the county superintendent as a superior teacher.

#### STANDARD OF WORK

1. The work outlined by the state course of study must be well done.
2. The discipline must make good school work possible and tend to establish sound character.

#### AN ILLUSTRATION

The county superintendent and the state supervisor of country schools called at a schoolhouse. One director had responded to the invitation to be present. It was a hopeless case. There was hardly enough ground in the yard for the children to play "Ring Around the Rosy." The walls were dirty and elephant ears were hanging from the ceiling. The old rusty stove occupied one-fourth the room and took its share right out of the middle. The desks were double, black with age, and seamed by generations of carvers. There was no library, and only ragged maps. There were, however, thirty wide-awake children and a good teacher. The supervisor minutely described how the house should be heated, seated, and decorated, and made an appeal to the children, teacher, and director to provide a house fit for these children. He said if there were no children here, if those who were here did not amount to anything, it would not pay to go to all this expense. But the large number of children so healthy and so wide awake were just the stuff to make good men and women. The school is their chance. If they will have the best school, they will have the best chance to become strong and useful men. It won't pay to save the money now. It will pay big to use a little money to buy so good a chance.

The director asked, "Well, what do you advise us to do?" The supervisor replied, "There is only one thing to advise, that is to build a new house on a larger piece of ground. It is not possible to commend anything except the teacher and the children."

The next year the county superintendent, without saying anything about what we were coming to, drove up to the same schoolhouse. Things looked different. Three directors were waiting. They pointed out that they had added an acre to the ground. When we stepped inside we were in a clean attractive room. There were new single desks of such sizes and so placed as to fit the children, a room furnace in one

corner, a sectional bookcase filled with books also to fit the children, two good pictures on the wall, and the children beaming with happiness.

While the superintendent was privately commending everything that had been done, one of the directors replied, "Last year we two stayed away because we were ashamed to come out." They said, "We tried to make this school as nearly as you said we should as we could." And they were not ashamed, but quite as happy as the children. They and the people now point with pride to their neat house, large grounds, and to the plate above the door showing that theirs is recognized by state authority as a standard school.

#### THE RESULTS

The results far surpass the expectations of the originators of the plan. The first year 150 schools were granted diplomas. The second year the number reached 300, the next 650, and the present year will reach 1,300. Several of the smaller and medium sized counties have reached 60 per cent and the largest county in the state, McLean County, with 230 one-room schools, has 110 standard schools within two and a half years. These numbers are gratifying, but to ride through the counties and visit these improved schools is a delight to one who wishes to see the country school become what it may become, all things considered—the best elementary school in America.

Those who have become convinced that the only solution of the country school problem is to consolidate the one-room schools into one district and have a centralized elementary and high school will wonder what effect this plan will have on that movement.

As long as the people believe their schools are about as good as they can be made, they will oppose consolidation for reasons which are entirely satisfactory to them. When they see that schools can be made better and when they and their children become desirous of even better schools, especially high schools, they will become more receptive toward what looks to high-school privileges at home in the country. Instead of retarding the day of the consolidated school, it is more likely to hasten it. The prospect of a good high school which country children can attend and yet be at home every night is the only appeal which the consolidated school makes to the country people. The plea that the consolidated school will be a great instrument of social betterment for the country people does not appeal to them as it does to those city

people who are so desirous for social progress in country life. They believe the schools are for the education of the children, not for the transformation of the mature population. When they see that their children need a country high-school education, they will provide the country high school. A really good elementary school now is most likely to set them in the right way of thinking.

The success of this movement depends primarily upon the county superintendent. If his heart is in the work, if he has the energy and the skill to meet and appeal to the directors, he can get what he wants for the children. They are men of good common-sense. They readily see that this does not smack of fads and fancies but that everything asked for is really needed. They are glad their county superintendent has taken interest enough to come to them. It is only a question of not letting them forget it. They will act. When they have brought their school up to standard they are the best-pleased men in the community. They may at first be condemned by those who wish to keep down expenditures, but when the work is done the people of the district recognize its merits and only commendation meets the directors.

## VIA. THE DEVELOPMENT OF A COUNTY SYSTEM OF EXPERT SUPERVISION; INCLUDING SUBURBAN, VILLAGE, AND RURAL SCHOOLS

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I shall attempt to present in the brief space allotted, the main points in the development of a system of expert supervision in Baltimore County, Maryland, believing that our experience in this "special case" may have some bearing on the important problem of determining the most effective plan of county-school organization, administration, and supervision.

In Maryland, the county is the unit; for all purposes of school administration the county is a municipality. The county board of education (officially designated "The Board of County-School Commissioners") is composed of either three or six members, appointed by the governor for a term of six years, the terms of one-third of the members expiring every two years. This county board of education has entire control of the school affairs of the county, except that of fixing the tax rate for schools. The tax rate is fixed, beyond a certain state minimum, by elected officers who have charge of the other governmental functions, but the County Board of Education has entire control of all expenditures for public education. By this organization the principle that the strong must help the weak is applied in the distribution of county funds, just as it is applied in practically all of the states in the apportionment of state school funds.<sup>1</sup> In other words, the state and county appropriations for schools are distributed by the County Board of Education according to the *needs* of the respective communities of the county, without special regard to the *tax-paying ability* of the various communities. This brief statement is necessary in order to show how a county system of supervision is possible in Maryland.

Baltimore County has an area of 630 square miles, with a population of 123,000, and is entirely separate and distinct from Baltimore City. There are in the county, in round numbers, fifty *one-teacher schools*,

<sup>1</sup> See Cubberley, *School Funds and Their Appropriation*.

fifty *two-teacher schools*, and forty-five schools having from three to forty-nine teachers. The larger schools are mainly in the belt almost surrounding Baltimore City, and are easily reached by trolley from the city. The one- and two-teacher schools and several consolidated schools are almost entirely in strictly rural communities.

In the year 1900 the supervisory force consisted of a superintendent and assistant superintendent, having the usual administrative duties of a county superintendent, and, in addition, having the financial and clerical work involved in accounting for all expenditures on the schools. These two officials visited each school twice a year, each devoting about one hundred of the two hundred days the schools were open to the work. No more was possible. The principal of each school was a teaching principal, responsible at all times for a class, and therefore able to do only the administrative work of the school, with no time for grade supervision.

The County Board of Education of six members, including farmers, merchants, and other men of affairs, soon came to see the necessity for more money and better supervision. The first step, after two years, was the employment of a clerk and stenographer. This gave the superintendent and assistant more time for visiting schools. Members of the board were taken with these two officials on their tours of school inspection just as often as possible, in order that the board might see and understand what it was possible to do to help the schools even in two short annual visits, and the importance of better supervision was constantly kept before them.

In the meantime a campaign for better schools and more money for schools was quietly but persistently kept up, in order to develop a strong public sentiment in favor of improved schools. Local teachers' meetings conducted by the superintendent were organized in all sections of the county in 1901; in these meetings the teachers became better acquainted with one another and with the superintendent. A year or two later these local meetings were conducted by principals of the larger schools, and in the rural communities by principals of two-teacher or larger schools who were able and willing to do so, and the superintendent organized a "Monthly Saturday Round Table for Principals of the Larger Schools and Leaders of Teachers' Meetings," to which a limited number of other teachers was admitted by special permission. This



was, of course, an optional meeting, but the local meetings in the larger schools were not optional and school was closed on Friday at two o'clock once a month for the purpose; in the rural communities the teachers of adjoining schools could close schools at noon to attend, or continue teaching, if they could not attend.

The first impetus for improved schools, better teaching, and consequently better salaries, thus came through these meetings, through the teachers themselves.

To bring the community in closer touch with the work of the schools, parents' meetings and civic organizations of men and women were addressed by members of the teaching force and the superintendents. No invitation to address these meetings was declined if it was at all possible to be present, and it nearly always was possible.

The needs of the schools were thus constantly kept before the public by interested citizens, teachers, the school authorities, and the local press. Portions of annual reports containing the plans of the Board and reprints of addresses made were mailed to a selected list of four thousand citizens. These lists, made by the principal of each school, contained one-fifth as many names of citizens, not necessarily patrons of the schools, as there were pupils in the local school. The public was thus taken into the Board's confidence, and the lines along which improvements were contemplated were known a year or two in advance. Some plans were necessarily modified, while others waited several years for favorable public sentiment to develop. Every movement toward improved schools began in a small way in a few schools. The plan was tried and modified to suit conditions and then gradually extended to other communities where conditions seemed favorable. Growth was slow, but on a sure foundation, and no backward step was taken.

The Board of Education was able to begin improvements in a few favorable localities through financial aid from the patrons of the schools. Domestic science began by the employment of a part-time teacher for one year by the patrons of a large school with the understanding that the Board would take over the work the following year, if successful. The women's clubs of a few other communities asked the Board to extend the work to their schools. Manual training was begun at about the same time in a similar way. Farmers' clubs and granges began to urge improvements in the rural schools. Consolidation of schools

began and an agricultural high school, a long-cherished project of two of the older farmers' clubs of the county, was revived in earnest, and finally in 1909, became an established fact.

Sentiment for better school buildings, better heating and ventilating, better sanitary arrangements, was easily aroused. "The modern school must be as well adapted to the purposes of the school as the modern home is to the purposes of the home" was our slogan.

All of these movements for school improvement helped one another, but the main purpose, *better supervision*, was kept constantly before the Board, illustrated by examples from the business world, and from their own private business. Why take so much time on this phase of the problem? *Because there can be no real progress without the force of a strong public sentiment for better schools back of it.* This is the most important single principle that the school administrator must keep in mind, in season and out of season. To forget it is fatal; illustrations of fatality are before us constantly. Constructive work in the organization and improvement of schools is not possible in a community that does not want better schools; but there is always some community in every county, I believe, that is ready for a little progress, and that community should be the administrator's point of attack.

More and better supervision of schools was needed in Baltimore County; how was it to be secured? The first problem for us might be stated thus: the teaching principal with administrative duties and expert grade supervision v. the non-teaching principal with administrative *and* supervisory duties. To have adopted the latter plan in twenty of our larger schools averaging ten teachers each would have required twenty additional teachers costing approximately twelve thousand dollars, and reaching only a small percentage of our schools. It has been my observation, too, that by the latter plan, as it works out in many city systems, the non-teaching principal with administrative and supervisory duties, comes more and more to be an administrative officer, with less and less emphasis on the problem of real constructive grade supervision. There are many notable exceptions, no doubt, in every large school system, the more notable because they are exceptions.

In my judgment, based on years of observation and visitation of schools in various cities, expert grade supervision is the most difficult, as well as the most necessary aid to good teaching to be secured in any system of schools. Be this as it may, the plan for a beginning in grade

supervision was within our reach, and, as the first four grades contained many more pupils than the four higher grades, in September, 1905, an expert in primary work was appointed Supervisor of Primary Grades. She began work in the first grade of nine of our larger suburban schools. After visiting these schools with me, and studying conditions for two weeks, the supervisor arranged to meet the twenty-three first-grade teachers in one of our schoolrooms on the second and fourth Friday afternoons of each month, to outline work, and to suggest how to plan all phases of primary work—language, reading, number, nature-study, stories, games, physical activities, and seat work. The supervisor then visited each of these teachers twice in three weeks, spending more or less time with each teacher as circumstances required. On the first Saturday of each month an optional meeting for all first-grade teachers of the county was held to prepare the way for future work in these schools. Practically all the teachers invited came to these meetings. The work in the first grade progressed so well that on November 17, 1905, the ten second-grade teachers in these schools were taken in as a new group. In January, 1906, eleven schools were added, with thirteen first-grade and ten second-grade teachers. In all fifty-six teachers and about twenty-five hundred children were reached during the first year. During the second year, twenty-six schools were represented in the work undertaken, with ninety-four teachers, forty-six in charge of the first and second grades, and forty-eight in charge of the third and fourth grades. Teachers' meetings were held regularly on the first and fourth Friday afternoons of each month.<sup>1</sup> The purpose of the meetings was to create a stronger professional spirit, to develop and discuss various phases of the course of study, to present lesson plans, and to give definite aid along any line suggested by the teachers.

Daily classroom visits were made, observing, teaching, and testing the classes as occasion seemed to demand. Conferences were held after dismissal of classes, either with the individual teacher visited, or with groups of teachers, and the subject-matter and method of work as presented were discussed.

The Board during this second year appointed one of the most efficient primary teachers as substitute teacher. Part of her work was to relieve the grade teacher for a day, so that a day's visit to another school might be made. The substitute spent a day with a teacher, previous

<sup>1</sup> First published *Report of the Supervisor of Primary Grades*.

to her visiting day, becoming acquainted with her work, giving her help in lesson plans, management of class, drawing and hand-work, then taking the day's work in the teacher's absence.

In September, 1908, a Grammar-Grade Supervisor was appointed. She began work with three groups of teachers, meeting two of the groups, fifth grade and sixth grade, at the town office, and a group of rural-school teachers at a rural school centrally located in their district. There were about twenty-five teachers in each of these groups so that the work of about seventy-five classrooms was influenced. This organization of the work continued for two years.

In September, 1910, the Seventh-Grade Group was organized, and in September, 1911, the Eighth-Grade Group. In all, the Grammar-Grade Supervisor had five groups of teachers, averaging twenty-five each. The number of afternoon meetings of each group with the supervisors was gradually reduced from one or more a month to five stated meetings a year; but the supervisors may call any small group of teachers to a three o'clock meeting not oftener than once a month for any one teacher. In practice, no teacher attends such a meeting more than two or three times a year; many, none at all.

The extreme limit for good grade supervision for one grade supervisor is one hundred teachers. As this limit was reached and passed in 1911, and as we were requiring help from the supervisors in other groups of teachers, the problem of an addition to our supervisory force confronted us. Either an additional expert supervisor for some of the intermediate grades between second and sixth could be provided, or one of the most efficient grade teachers in the primary and grammar grades might be chosen to assist each of the two supervisors. After a thorough consideration of this problem for more than a year by the Board of Education, the supervisors, and superintendents, for we saw the problem far ahead, we unanimously decided for the teacher assistant. Each supervisor was permitted to choose her assistant, and in each case an exceptionally strong teacher was chosen, naturally; but also a teacher who was especially strong in some phase of the work where the supervisor needed most help herself; in one case, music; in the other, industrial arts. Both of these teachers assist in the various kinds of office and field work, and the supervisors have an expert stenographer three weeks out of every four; the other week of the stenographer's time is given to extra work in the office of the superintendents.

Beginning in 1910, the superintendent organized an all-day meeting five times a year for *one-teacher rural schools*. These meetings were in a measure preparing the way for the appointment of a special supervisor in this field. As programs for such meetings are not often found in print, I present a typical one here with explanatory notes following:

TOWSON, MARYLAND

April 20, 1911

*To the Teachers of the One-Teacher Schools:*

The fourth meeting of your group will be held at 300 N. Charles Street, Baltimore, Md., on Friday, April 28, at 9:30 A.M. Delay in arrival of a few will delay the work of the group, so please be prompt.

The topics for the day will be—

- I. Report on sets of pupils' papers handed in at the last meeting and a discussion of your report on work done during the month by the Superintendent. 30 minutes.
- II. The Reading Assignment. 45 minutes. By Miss Tall.  
In preparation for this read carefully "Reading and Literature" introduction, pp. 218-21 in the Course of Study. Come prepared to take notes.
- III. Singing of songs suitable for one-teacher schools. 30 minutes. Conducted by a Grammar-Grade teacher.
- IV. (a) What "community work" have you done since our last meeting?  
(b) What school or home garden work have you initiated since the last meeting? (Replies in answer to roll-call during the meeting.)  
45 minutes.
- V. Chap. xi, pp. 205-33, of Foght, *The American Rural School*. 60 minutes.  
Study this chapter with special reference to your own school community, remembering that the older boys and girls who are in school only for part of the year, or even not in school at all, have a claim on the school and should be helped by the school. Your efficiency and the efficiency of your school will, in the near future, be judged by your ability to undertake and carry out all the activities that a modern rural school stands for. We shall begin to organize clubs early in the Fall term. Mr. Crocheron will outline a plan of procedure.
- VI. Report on "Domestic Science in a Rural School." 15 minutes. Miss Mabel E. Stanton, Loreley. Read again Miss Stanton's article, p. 29 of the April *Atlantic Educational Journal*.
- VII. Discussion of the Report of the Committee on Literature. 30 minutes.

Four and a half hours of work are planned, including 15 minutes for a rest period in the afternoon. The sessions will be from 9:30 to 12:00, and from 1:00 to 3:00, providing everyone is on time.

I should like all the teachers to bring lunches. Coffee will be provided, and we will arrange a luncheon table in the room, and illustrate how the pupils of a one-teacher school might have luncheon together daily.

Sincerely yours,

ALBERT S. COOK, *Superintendent.*

The assignment for Topic I, made at the meeting, six weeks before, was Bring with you—

- (1) One set of papers in language, grades 1-3.
- (2) One set of papers in arithmetic, grades 4-8.
- (3) One set of papers in spelling, grades 3-6.

By a set of papers is meant a paper from each member of a grade present when the work was given.

*Important.*—All work must be done on the 6×9 pencil paper, with lead pencil. The subject, grade, and school must be placed on each paper for identification.

For Topic III, the assignment was—

Bring a list of the songs that your pupils sing as a regular part of their school work.

Topic IV. We permitted "Community Work" to include any activity of pupils or teacher that tended to bring the home and school into closer relationship, from the teacher's visit to a parent, to the organization of a corn club.

Topic V. Mr. Crocheron is the principal of our Agricultural High School, and through this school the corn clubs were organized and their activities directed.

For Topic VII the Committee on Literature selected stories and poems suitable by grades for the first three grades of a one-teacher school.

During this meeting we also worked out a plan for having the children eat their lunches together during the first twelve to fifteen minutes of the noon recess. This plan has been worked out very successfully in all our rural schools.

It will be noted that Miss Lida Lee Tall, our supervisor of grammar grades, had charge of Topic II. At other meetings Miss Isobel Davidson, supervisor of primary grades, assisted in presenting some one definite phase of subject-matter. In this way much help was given by

experts where help was most needed. You will notice, too, that one principal, one grade teacher, and one rural teacher assisted in the program. I may as well say here as at any other point that the one best thing in all our supervisory group meetings is the help that the group gets from its own members who are especially strong in one or more phases of school work. The fundamental conception of our supervision is to bring to each member of the group the collective strength of all its members, and to each group, through the supervisors, or through individual members of the group, the collective strength of all the groups, in so far as this may apply to their work. In other words, co-operation for professional growth, both by giving and receiving on the part of teachers and supervisors, is our aim.

In September, 1911, two new supervisory groups were formed, composed (a) of the principals of all the two-teacher rural schools, and (b) of the assistant teachers in all the two-teacher rural schools. The work in these groups was planned by the supervisor of grammar grades and the supervisor of primary grades, respectively, and four all-day meetings were held, as it is not possible to close these schools for a half-day meeting because of the distance from the place of meeting. As each of these groups contained fifty teachers, they were divided into two sections this year; this will also be done with the one-teacher rural group of fifty.

A plan which the Board has had under consideration for the past five or six years was announced in September, 1912. A supervisor of rural schools was appointed. The delay was in part due to the difficulty in securing a man properly equipped for the work who was thoroughly familiar with the school situation in the rural districts of the county. We wanted a man who knew the work of the elementary school well enough to be an excellent grade supervisor, but who had grown up in a rural community, and had taught in a one-teacher rural school. The Board unanimously elected Mr. Clarence G. Cooper, who had taught a one-teacher school in 1900, and had passed through the various positions as principal up to the principalship of one of our largest schools; who had then gone to teach in the Speyer School, New York, taken a Bachelor's degree and diploma in teaching in Teachers College, Columbia University, and had then returned to organize one of our largest schools in a new suburban district. I mention this to show the importance we attach to the qualifications of a man for this special work.



The Rural-School Supervisor will devote his entire time to the study of rural-school problems, and will assist in their solution in Baltimore County. The first year will be devoted in the main to some of the more isolated one-teacher schools and their problems, coming into close touch with parents, pupils, and teachers, with a view to securing unity in the fundamentals of school work, and making a beginning in organizing the rural schools for rural life.

Beginning with September, 1912, therefore, every teacher in the elementary schools of Baltimore County became a member of a supervisory group of not over thirty-five teachers, and all but two of the thirteen groups are in charge of a grade supervisor who visits the teachers of that group, assisted by any member of the teaching or supervisory corps who can do especially well the thing needed to be done. The other groups will for the present be visited by the assistant superintendent, but the grade supervisors and others will assist in planning and conducting the work of these group meetings, as heretofore. The superintendent will aim to visit every school in the county for inspection once during the year.

The work in home economics has grown to include the girls in the sixth, seventh, and eighth grades of some of the two-teacher schools and the three-teacher and larger elementary schools, and is continued through the four years' course in our five high schools. A supervisor gives all of her time to this work, assisted by seven special teachers of domestic science, and about sixty grade teachers who teach sewing in the fifth and sixth grades under her direction. A beginning in the organization of domestic-science clubs for rural girls in and out of the rural schools will be continued under her direction. The supervisor of manual training has been relieved of teaching a class three days a week for the past few years so that he may look after the work with the boys of the sixth, seventh, and eighth grades and of the five high schools. He is assisted by six special manual-training instructors. The domestic-science and manual-training teachers travel from school to school on a weekly schedule, taking the boys and girls of the same class at the same hour, so far as practicable. There is no other supervision of special subjects except through the grade supervisors and their teacher assistants.

The entire cost for salaries and traveling expenses of the three grade supervisors (primary grades, grammar grades, and rural schools), the



two special supervisors (home economics and manual training), and the two teacher assistants is less than the cost of having non-teaching, or part-time teaching principals in from twenty to thirty of our larger schools; the administrative work of our principals has become more efficient, and the work of the grade teachers as well as of most of the rural teachers is conducted under the sympathetic co-operation of expert supervisors.

Some time after the passage of a state law providing for two grade supervisors in counties where the number of teachers exceeds one hundred and fifty, and one additional supervisor for every additional one hundred teachers, the following statement of what the supervision in Baltimore County has aimed to do was prepared by Miss Tall, our Supervisor of Grammar Grades, at the request of a member of the Board of Education:

**WHAT SUPERVISION IN BALTIMORE COUNTY HAS AIMED TO DO**

1. To improve the methods of presenting subject-matter to the pupils.
2. To teach both teachers and pupils how to study.

The problem of how to study is one of the most important problems in the focus of attention in school work today. Not only must pupils in the elementary schools learn how to use the index, table of contents, footnotes, and marginal notes in textbooks, but they must also be able to do independent work in selecting and arranging related facts and facts that are most worth while, when answering a lesson problem that is put to them.

In Baltimore County whenever a teacher, particularly interested in any subject, makes a good outline for the topics in that subject, this outline is mimeographed and a copy given to all the teachers of the same grade in the county. These outlines are discussed, criticized, the references noted, corrected, and used as a basis for further work.

3. To provide an adequate textbook equipment.

We have tried to put the best books, not only into the hands of the teachers, but also into the hands of the children. We have had the liberal support of the School Board in this, and though we could not give an adequate textbook equipment to all schools during the first year that the course of study was in operation, it was decided to give the two-room rural schools a complete equipment. The reason for this is obvious; seatwork is the most difficult problem the rural teacher has to meet; her textbook equipment should, therefore, be of the best. The one-room rural school did not received the same attention that year because, unfortunately, the teaching population of the one-room rural school is not as static as that of the two-room rural school; but in these schools, and in the large schools where the expense is necessarily large because of the numbers of pupils, the improving of the textbook equipment is steadily going on.

4. To make a tentative course of study that presents enough difficulties to keep the brightest teacher alert in her work, and at the same time that does not discourage the weakest teacher.
5. To adjust the teaching force to this course of study by showing month by month and year by year that the course is based upon sound principles and upon children's interests, powers, and development.
6. To use the strength of the teaching force as it develops to improve this course of study, so that the course will finally be one made by the teachers, not one imposed upon them.

The course of study, in its present form, has been in use four years. The primary-grade section shows a revision of the course made seven years ago. The grammar-grade section, organized four years ago, will be revised this year, and committees of teachers will bring their classroom experiences to bear on this revision.

7. Through the intelligent working-out of the course of study with its minimum and maximum requirements, to make work in the grades show a definite sequence. This means evaluation of the topics in each subject, and of the texts for that subject, for each grade.

The advantages of this should be felt in the grading of pupils and in the transferring of pupils from one section to another.

At the group meetings for the first year only two topics were assigned for discussion—history and reading. Naturally in the general comments that came up all the subjects were touched, but we worked with concentrated attention only upon the two assigned. The next year one more topic was added to these two, and the three discussed. The hygiene of the daily program was studied by committees of teachers from the various groups, and their conclusions were formulated in a report that was put into the hands of each teacher together with a suggested daily schedule to be tried for one year.

8. To form a bond for unifying the county; to harmonize (a) pupils and teachers, (b) teachers and principals, (c) teachers and superintendent, (d) school and community.
9. To study the teachers intelligently as individuals; to encourage and use strong teachers; to encourage and help the weak ones to grow strong.

After all this is the crux of supervision—to understand the teachers spiritually, physically, mentally, morally, and socially, to be able to put one's self in the teacher's place, to work forward from the teacher's point of view—this is the most vital task of the supervisor. Isolation means retardation not only to a teacher, but to every individual trying to do the work of life. Co-operation levels barriers, fosters sympathy, and makes it possible to strengthen the work by using the talents of the teaching force. We use our strong teachers to give observation lessons; for art instruction with the groups; for music with the groups; for making outlines for other teachers; for organizing patrons' clubs; and for trying out experiments which later are to be presented to the group.

10. To prove to the teaching force that all members of the group must look at the work sanely, with due regard for health, and also with business insight—salaries must be earned, and in a profession as in a business there should be value received.

A teacher must look her own motivation for entering the profession fairly and squarely in the face. When it comes to pass that she understands her motive for entering this field of work, and her motive for continuing in the work, then and then only will she know not only her strength and weakness, but also the combined strength and weakness which determines the character of the school as a civic institution.

11. So to develop the work that the teachers as a body may realize that there is always opportunity for improvement. Since the laboratory in which we work contains the individual souls and minds of children, a permanent chance is given to every teacher to grow. No one should be satisfied, yet, withal, there must be optimism.
12. To develop initiative in teachers and through them to develop initiative in the pupils.

The world needs leaders of men. The mass must be educated so that out of it may spring leaders.

13. To bring the public in touch, as far as possible, with the work of the school.

The community has unmet school needs. The school must learn of these. The school has needs unmet by the community; the community must learn of these. The closer the school and community work together, the better will the teacher's real value be understood and appreciated (not only in sentiment, but in dollars and cents) and the better will the community realize that the "Community is the School."

The accomplishment of these aims has been attempted by means of the following projects:

- a) The Teachers' Annual Institute of two weeks on the summer-school plan.
- b) The course of study.
- c) Monthly group meetings.
- d) Individual conferences.
- e) Visits to schools.
- f) Teaching lessons for teachers.
- g) Observation lessons taught by a teacher in the classroom, followed by critiques conducted by the supervisor.
- h) Observation lessons at group meetings, the class taught by the supervisor with discussion following the work.
- i) A music festival.
- j) Three annual flower festivals.
- k) Community spelling matches.

- l) Community arithmetic tests.
- m) Office equipment.
- n) Telephones.
- o) Patrons' Meetings.
- p) A monthly requisition of specimens of grade work (not show work) brought into the office from all the schools.<sup>1</sup>

#### CONCLUSION

This is what grade supervision has aimed to do. As you read you will ask the question, Has it been accomplished? Yes and no. Accomplished in so far as ideals of work once formulated and steadily worked toward are making their influence felt. No, in the fact that fortunately we shall never "arrive" in education. As soon as the teaching body co-operates in one thing the horizon is broadened and we push forward to better things. So we are working together—teachers, supervisors, superintendents, school board, and community. With such co-operative forces, though growth may be slow, growth must also be sure.

<sup>1</sup> This work of the pupils is classified under subject heads and placed in boxes which are kept in the office and which are free to all teachers to look over when they please. Such a collection of work forms the basis for comparison of the work of one school with another, for help with beginning teachers, for incentives for pupils (many teachers sending in requests for a package of work so that their pupils may see what pupils in other schools are doing) and the comments and criticisms that result from the interchange of ideas must eventually unify the work. We have labored unceasingly to have the teaching body understand that the same results cannot be effected in all schools; when this is finally understood teachers will be more willing to stand by the educative process as a means to an end—that end being the development of the special individuals under their care without regard to uniformity of work, but with full regard to the *individuality* and development of the child.

## VIB. METHODS OF SUPERVISION IN BERKS COUNTY, PENNSYLVANIA

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E. M. RAPP  
County Superintendent, Reading, Pa.

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In this county for many years a campaign has been waged to raise the standard of the rural schools along the following lines:

### I. IMPROVEMENT OF THE TEACHING FORCE

After fifteen years of a strenuous and aggressive campaign for a better type of teacher for our country schools, we are able to report for the coming year the employment of 350 state normal school graduates, 140 holders of state and county permanent certificates, 25 college graduates, 15 holders of professional certificates, and a score of holders of the provisional grade—the lowest grade certificate. Fully 95 per cent of the 550 teachers in Berks County had some state normal school training. Applicants for the lowest grade certificate for the last two years were supposed to have at least four years' high-school training supplemented by a year's professional training at a state normal.

Fifteen years ago 70 per cent of the teaching force held the lowest grade certificate. The greatest obstacle encountered in improving the qualifications of teachers were the so-called summer normals, academies, and seminaries, taught, for the most part, by mediocre teachers, where candidates for provisional certificates were prepared. That school was the most popular whose students readily would pass a superintendents' examination. Those subjects which would give self-reliance, vigor, and culture were set aside, and the minds of prospective applicants were sterilized and dwarfed in the perpetual drill of a handful of common branches. By rejecting the great majority of these applicants, these schools gradually went out of existence, until none of them survive today. Of the 550 teachers, 300 are male and 250 female, averaging 25 years of age, and fully 90 per cent are country-bred. The average salary is \$52.50 a month, or almost double that of fifteen years ago, and the average term not quite eight months. We are earnestly striving to keep the teaching corps in touch with the spirit of the times through

teacher's institutes, county, local, and district; association meetings and conferences, at least a half-dozen each year; reading-circle work; the county traveling pedagogical library, and by encouraging attendance at summer sessions of normal schools, chautauquas, and colleges.

## II. THE CONSOLIDATION AND CENTRALIZATION OF SCHOOLS

After an agitation of almost two decades, less than a score of small schools in this county are abandoned and the pupils transported to graded and central schools. Marked improvement has been made where this has been done. We are convinced that in the organization of a well-planned series of consolidated central schools with connecting high schools lies, in large part, not only the solution of the rural-school problem but the solution of the rural community problem as well.

## III. THE ENRICHMENT OF THE COURSE OF STUDY FOR COUNTRY CHILDREN

The course of study is largely the teacher, whatever it is on paper, and enrichment of the course must come principally through enrichment of the teacher. The slogans of our country have been for years, "stay on the farm" and "the country school of today for the country life of tomorrow."

Farm arithmetic, farm geography, country-focused literature are now the rule rather than the exception. Elementary textbooks in agriculture are found in all rural schools. We have tabooed the idealizing of captains of industry, railroad presidents, military heroes, standard-oil magnates, and beef-trust barons, and advocated the idealizing and intellectualizing of agriculture and country life. Every effort is made to place the school in agriculture into right relation to its environment, rather than to place agriculture into school. After all, the education that should be given boys who are to be farmers will make the best kind of foundation on which to rear the structure of any calling or profession. In order to give redirection of education in the country in this county the following movements were inaugurated:

a) The organization of boys' and girls' clubs for home industrial work with a membership of 1,500, organized seven years ago. This movement greatly vitalizes all school work, and this industrial work is correlated with drawing, language, composition work, arithmetic, and geography.

b) The organization of a country teachers' association.

The membership consists of every one of the 350 one-room teachers in the county and meets once a year at Reading for the discussion of rural-school problems. Only non-resident speakers are employed who are in sympathy with the country-life movement. Great good has come out of these meetings.

c) The establishment of a country-life book-shelf of 60 volumes in the office of the county superintendent and open free to every teacher and farmer in the county.

All of these books have a tendency to redirect the institutional life of the open country, to the end that a better rural civilization may be developed. A complete catalogue of the books is printed and forwarded to anyone desiring the same. The following are a few titles of the excellent publications:

*The Country Life Movement*, L. H. Bailey.

*Chapters in Rural Progress*, Kenyon L. Butterfield.

*The Rural Life Problem of the United States*, Horace Plunkett.

*The Training Farmers*, L. H. Bailey.

*Rural Wealth and Welfare*, George T. Fairchild.

*The American Rural School*, Harold W. Foght.

*Institutional Work for the Country Church*, Charles E. Hayward.

*Adventures in Contentment*, David Grayson.

*Neighborhood Entertainments*, Renee B. Stern.

*Farm Boys and Girls*, William A. McKeever.

*Freckles*, Gene Stratton Porter.

*Co-operation Among Farmers*, John Lee Coulter.

*The Conservation of National Resources in the United States*, Charles R. Van Hise.

*The Satisfaction of Country Life*, James Robertson.

d) The introduction of a soil-survey report and map of Berks County into each rural school.

The copies bound in paper covers, including both manuscript report of 50 pages and map covering this area, were obtained from our representative in Congress. The survey took place several years ago by the Division of Soils, U.S. Department of Agriculture, and required the work of five experts for six months' field work and cost the United States Government \$30,000, two years elapsing before completion. The soil map constructed on the scale of one-inch to the mile, is over four feet long and nearly three and one-half feet wide, showing in colors where

each kind of soil occurs on each ten acres in the county. It also shows the surface topography, public roads, steam roads, streams, post-offices, trolleys, and bridges. As a means of preserving the maps, local school boards were requested to frame them and cover them with glass and have them hung on the walls of schoolrooms. This request was generally complied with—the cost approximating \$5 each. Teachers are now required to teach the salient features of the manuscript report in connection with the teaching of local geography to all eighth-grade pupils, and all eighth-grade applicants for graduation have to undergo an examination in local geography based largely on this report.

The township high schools are expected to teach more in detail this report in connection with the teaching of physical geography and geology.

e) The inauguration of Field Day and play picnic for country children.

Saturday, May 11, 1912, was an ideal day for the holding of the second Play Carnival in the county. The weather could not have been more delightful, and this accounted largely for the big attendance, estimated at over 5,000, fully 2,000 more than last year. The normal-school authorities at Kutztown again made ample provisions for the accommodation of the multitude, and visitors were highly pleased with the detailed arrangements that ministered so much to the comfort and joy of the occasion. The song festival of the various high-school students of the county, the games and rhythms of the kindergarten children, the calisthenic drill and singing of the practice-school pupils of the Normal, the marching and gymnastic games of the senior normal students, the outdoor demonstration of over 50 games adapted to all grades below the high school, and the field and track events were fully up to the standard set last year. A new feature this year was an oratorical contest which proved very popular. There were 11 contestants, each representing after a preliminary contest his or her respective community. The awards were made as to originality, English, and delivery. Since each oration was not to exceed four minutes in delivery, the contest lasted less than an hour. Contestants were required to select one of the following topics: "The Neighborhood Community—How Improved"; "Our Competitive Field Day Exercises"; "The Boy Scout Movement"; "Woman Suffrage"; "The Schoolhouse as a Social Center."

The entries in the track and field events were almost double those of



last year, and the records were better. The relay races proved most popular. Trophies in the form of cups, badges, and pennants were awarded the winners. There were in constant use all day the May poles, slides, bowling alleys, swimming pool, tennis courts, swings, horizontal bars, see-saws, teeter ladders, and sand pits. Since the inauguration of this movement, the play activities of almost every rural school have been stimulated, the repertoire of games of the children considerably increased, and playground apparatus installed in many school plots as well as farm homes.

f) The standardization of one-room schools. The plan of standardizing one-room schools was inaugurated several years ago, and this proved most effective in placing our rural schools on such a high plane. The first year 4 schools received diplomas; last year the number was increased to 41, and by the end of the coming school year, fully 150 will measure up to the standard and become "accredited."

Each teacher and director is supplied with a four-page circular setting forth the 50 minimum requirements for a standard one-room school. The teaching and organization of the school count 75 per cent, and the physical equipment 25 per cent. Several applications were refused on account of inefficient teaching. Nearly every one of the 350 single-room schools made effort to qualify in some of the specified conditions in order eventually to reach the desired goal. Directors are vitally interested in the project, and in several instances this resulted in the erection of first-class buildings, with all modern improvements. It resulted largely in the installation of 150 sanitary room furnaces combining a system of heating and ventilating, principally the Smith and Waterbury systems, and also the installation of a number of sanitary bubbling fountains for one-room schools. The school code making mandatory the display of the flag, planting of trees, and improvements of out-buildings greatly facilitated this movement.

g) The introduction of traveling art exhibits for one-room country schools modeled and planned somewhat after the Turner free traveling exhibit. To the Civic League of Reading belongs the credit of inaugurating this movement.

Each exhibit contains a dozen carefully selected pictures mounted on cardboard peculiarly adapted for one-room schools and accompanied by books and leaflets on picture studies for the teacher. The child thus becomes familiar with a dozen good pictures a year.

The following constitutes exhibit No. 5 and gives an idea of the excellent selections of pictures:

"Horse Fair," Rosa Bonheur  
"Madonna of the Chair," Raphael  
"A Morning Landscape," Corot  
"Sir Gallahad," Watts  
"Can't You Talk?" Holmes  
"Escaped Cow," Dupre

"Washington," Stuart  
"The Blacksmith," Frere  
"Return from the Farm," Troyon  
"Harvest Moon," Mason  
"Caritas," Abbott Thayer  
"Feeding Her Birds," Millet

These pictures tell the story of happy animal and child life, of vigorous action, of mother love, and love of Nature.

Since the inauguration of this movement there are no longer found on the walls of our schoolrooms advertising cards, chromos, faded prints of authors, tissue-paper flowers, pictures of military heroes, and battles on land and sea, or even classic ruins of a "dead" past. No unframed pictures are allowed on the walls of schoolrooms, and to guard against overdecoration less than eight wall pictures are suggested. Within the last ten years thousands of dollars have been expended in indoor art and the money thus expended was raised principally through the activity of teachers and patrons by means of entertainments given by school children. Spiritualization through environment is a potent factor in rural uplift.

k) The publication of a monthly bulletin devoted chiefly to glorifying the constructive uplift work of teachers, patrons, and directors.

Ten numbers, covering the school year, of a thousand copies each, are forwarded free to every teacher, director, and interested patron. This bulletin, varying from 12 to 24 pages, with no advertising matter, is in fact the clearing-house of information of all educational activities within the county. The front-line school districts are kept constantly in the limelight. This local booster journal is no mean factor in stimulating school activities.

i) Schools as social centers. A beginning has been made in the county whereby schoolhouses have been used as social centers principally through the organization of school and home associations. There is no reason why country schoolhouses should not be used more and more for all sorts of social activity, instruction, and amusement. The idle moments of a schoolhouse, whether in the city or country, are a social

waste. They should be made to yield a larger service to society. Every schoolhouse, city or country, more or less, can be made a triple social center as follows:

*A teaching center.*—Kindergarten; elementary high school; continuation, commercial, trade, and technical; immigrant (adult), English, arithmetic; defective, crippled, deaf, dumb, blind, tubercular, anaemic.

*A recreation center.*—Organized play, team, gymnastic, athletic, folk-dancing; evening recreation classes, clubs, study, games, dramatics, music (piano, orchestra, vocal, etc.), baths, luncheons, holiday celebrations, native celebrations, marksmanship, boy scouts, white wings.

*A civic and health center.*—School city, town hall, people's forum, debate, community interests, public officers' reports, children's district court, mothers' club, parents' association, art exhibit, traveling libraries, humane society, employees' co-operation, sanitation, medical supervision, sex hygiene, visiting nurse, civic festivals, day nurseries.

j) A rural-school survey. In co-operation with the Bureau of Education at Washington, D.C., all arrangements have been made for an inventory in the fall of the county's rural schools and social forces and assets, calculated to acquire accurate information and to increase still further interest by teachers and patrons in the schools and social conditions of the county and thus produce better communities. This first-hand rural research will afford a most intensive and thorough study of rural conditions, and its conclusions will be published in a manual.

According to latest statistics, the urban population of Berks County increased from 49.5 to 54 per cent. This makes a 4.5 per cent increase as compared with a general ratio in the entire state of 5.7 per cent. In other words, country people elsewhere in Pennsylvania are moving to cities faster than in Berks County.

The city of Reading was greatly disappointed in not reaching the desired goal of 100,000 population—the ratio of increase of the city falling to 21.9 per cent. There is every reason to believe that redirection of education in rural Berks County is an important factor in checking the movement of population to its city. This redirection of rural education also now sends five boys to technical college while sending one to classical college. The world needs few scholars, but many bread-winners.

SAMPLES OF TWO BLANKS USED IN BERKS COUNTY

APPLICATION FOR A DIPLOMA FOR THE STANDARD ONE-ROOM SCHOOL

District.....  
Name of school.....

This Diploma can only be obtained by the hearty co-operation of the Teacher and the School Board. The Teacher, together with the Secretary of the School Board, is to answer *each* question carefully, and if the School is found to meet all the requirements on the points noted, a diploma will be granted as a testimonial of the fact. This diploma becomes the property of the School and should be framed and hung in the room. This application, after all the questions have been properly answered, must be signed by both the Teacher and the Secretary of the School Board, and will be filed in the Office of the County Superintendent, together with sketches of the teachers.

A list of schools which have received diplomas will be published from time to time in the Public School Bulletin as well as in the local papers. In course of time a pamphlet will be issued, showing what has been accomplished by the schools in bringing about better school conditions for the country children. The shortcomings and deficiencies may take some time to rectify, but they should be brought up to the standard as indicated as soon as possible.

The country school can be made a vital force in the solution of the problem of country life. The problem of country life is the problem of more complete living, the enrichment of the life of the individual.

The right kind of a country school taught by a teacher who is in sympathy with all that is richest and best in country life will give children the finer ideals, and in a generation we will have a race of people who will choose to remain in the country. And they will find pleasure and profit in doing so. There is no reason why the physical condition of the country school in this county should not be equal to the best farm house in the county.

This application should be forwarded to the County Superintendent whenever all the requirements are complied with. There is no reason why every one of the 350 one-room schools in Berks should not be standardized.

Will you help to make the one-room schools in Berks the best in the U.S.?

GROUNDS

1. Are there thriving shade trees?

N.B.—Under the Code School Boards shall provide and maintain a proper number of shade trees.

2. Is there ample playground?

N.B.—An acre of ground should be secured for every rural schoolhouse; and, if two acres can be obtained, it will be so much better.

The school grounds and buildings should be used for social and recreation purposes. Playground apparatus should be provided.

3. Are the grounds in a neat, proper, and sanitary condition?

*A. Waterclosets*

1. Are there two waterclosets, and are they at least twenty-five feet apart?
2. If less than twenty-five feet apart, are the approaches or walks thereto separated by a closed partition wall or fence, not less than seven feet high?
3. Are the *entrances* to waterclosets outside the school building properly screened? The new code makes this mandatory.

N.B.—Place screens on two sides of the building. Plant hardy perennial vines against the screens and train them so as to cover the entire structure.

4. Are they kept clean, comfortable, and sanitary, or are they dismal, dirty, dingy, disagreeable and disgraceful, devil-devised dens, with sin-scratched walls and sin-producing suggestions?

5. Is their condition repulsive to the fine tastes and pure moral tone of the child?

6. Are they what they should be, or are they “seminaries of sin,” whose vicious, venomous, voiceless, vice-producing virus is sufficient to annul the whole moral influence of the best of Teachers?

N.B.—In erecting new buildings, indoor sanitariums and closets should be provided.

Under the new code there must be at least two closets for each building where both sexes are in attendance. Closets must be at least twenty-five feet apart. If less, they must be separated by a closed partition wall or fence, not less than seven feet high.

Boards shall, not less than ten days prior to the opening of each annual school term, and oftener if necessary, have all closets properly cleaned and disinfected by the use of fresh dry slacked lime or other proper disinfecting material.

Closets near streams should have cement vaults not too deep and so arranged as to remove readily all excrement and waste matter.

All privies should be suitably constructed and painted inside and outside.

Rough sanding the interior will prevent obscene writings and drawings.

*B. Flagstaff*

Is there a flagstaff and the necessary appliances therefor upon or near the school building?

N.B.—Under the code, Boards shall, where they are not otherwise provided, purchase a U. S. flagstaff and the necessary appliances therefor, and shall display said flag upon or near each school building in clement weather, during school hours, and at such times as the Boards may determine.

*C. Fuel House*

Is the fuel house convenient and in good condition?

N.B.—It is best to have all fuel in the cellar of the building. Dilapidated coal bins are an eyesore.

*D. Drinking Water*

Is there a sufficient supply of good, pure drinking water in each district?

N.B.—Earthen water jars with spigot and cover are suggested as a covered water receptacle for the schoolroom.

Teachers should insist on each child having an individual drinking vessel.

An artesian well should be found on each ground where the supply of water is not readily obtained. Best of all install sanitary bubbler fountains now on the market.

## SCHOOLHOUSE

1. Does the room have at least fifteen square feet of floor space for each pupil?

2. Is it painted and in good repair?

N.B.—The porch floors and steps should be of cement in order to be most economical to the taxpayers.

*A. Lighting*

1. Is the light admitted from the left and rear?

N.B.—It is illegal to admit light from the front of the seated pupils. Bilateral lighting is legal.

2. Does the total light area equal at least 20 per centum of floor space?

N.B.—Protecting cellar and door transoms of glass with wire screening of small mesh is a saving of money.

*B. Ventilating*

1. Is there at least 200 cubic feet of air space per pupil?

N.B.—Windows being the only means of ventilation shall admit of ready adjustment both at the top and bottom.

A ventilating device to protect pupils from currents of cold air is a legal requirement.

Costly devices are not necessary. It is best to combine heating with ventilating.

A thermometer is a legal requirement for every schoolroom or recitation room. Use good thermometers.

Every schoolroom shall not have less than 200 cubic feet of air space per pupil, and every school building more than one story high shall supply each room with fresh air at the rate of not less than 30 cubic feet per minute for each pupil.

The temperature of rooms should not be less than 60° nor more than 68° Fahrenheit.

*C. Heating*

1. Is the school provided with a sanitary room furnace?

2. Is the common heating stove, if any, inclosed in part with a shield or jacket made of galvanized iron?

N.B.—An unjacketed stove is illegal. In this age it is time to abolish the common heating stove altogether from schoolrooms and substitute cellar heat or sanitary room furnaces, combining a system of heating and ventilating.

*D. Shutter Fastenings*

1. Are there shutter fastenings on the shutters, or is the teacher compelled to invoke the aid of a friendly rail from a nearby fence to keep them quiet on a windy day?

N.B.—The stronger the fastener the better.

*E. Blackboards*

1. Has the schoolroom an ample natural slate blackboard suitably placed?

N.B.—A room without slate blackboards is now regarded a curiosity.

*F. Decorations*

1. Are the walls and ceiling suitably painted?

N.B.—A tinted kalsomine will cost but little, if any, more than the whitewash. Wallpaper should not be permitted.

2. Is there picture molding on the walls?

### G. Floors

#### 1. Are the floors in good condition?

N.B.—The best floors consist of blocks of wood, with asphalted joints, placed on a bed of cement.

All cleaning of the floors should be done daily, at the close of the afternoon session, after all the pupils have left the building.

### FURNISHINGS AND SUPPLIES

#### 1. Are the desks and seats adjusted to the children and properly placed?

N.B.—Single adjustable desks and seats are preferable. Where not adjustable there should be at least three sizes of desks.

#### 2. Is the teacher supplied with a good desk and chair?

#### 3. Are there recitation seats?

#### 4. Are there shades upon the windows?

N.B.—Shades in pairs are preferable, that is, one at the top to draw downward, and one below to draw upward. Remember that the springs in roller shades may wear out.

#### 5. Is there a sufficiently large bookcase or wall closet to house the supplies and library books? Bookcases should be artistic.

#### 6. Are there at least 50 readable books in the school library?

N.B.—Each township should appropriate at least \$10 to each school each year, to maintain the school library. See State Course of Study for suggested list of books.

#### 7. Is there a reading-table provided with papers, magazines, and periodicals?

N.B.—There should be at least one farm journal like *Farm and Fireside*, *The Country Gentleman*, *Country Life in America*, etc. Among other periodicals are the *American Boy*, *Youth's Companion*, *St. Nicholas*, *World's Work*, *Literary Digest*.

#### 8. Are the wall pictures well selected and well framed?

N.B.—Have no unframed pictures upon the walls. Casts, if any, should be well placed.

#### 9. Is the school provided with a good thermometer?

N.B.—Boards can afford to pay at least \$1 for a good mercury thermometer.

#### 10. Is the thermometer well placed?

#### 11. Is there a waste-basket in the room?

#### 12. Is the school supplied with a good clock?

N.B.—Clocks should be cleaned every year.

#### 13. Is the school provided with a globe?

N.B.—A globe costing less than \$3 will answer all purposes for one-room schools. A \$10 globe is a waste of money.

#### 14. Is the school provided with a set of outline maps in a roller case?

N.B.—The maps should not cost over \$25 for a full set.

#### 15. Is there a sufficient supply of dictionaries?

N.B.—Dictionaries over ten years old are out of date.

#### 16. Is the school provided with all necessary supplies?

#### 17. Is the school provided with all the necessary textbooks?

## ORGANIZATION

1. Is the monthly report book well kept?
2. Is the textbook record accurately kept?
3. Does the teacher have in his possession last year's teacher's term report?

N.B.—Directors would do well not to pay the last monthly salary until such report is properly filled out.

4. Is there a copy of the course of study as prepared by the Department of Public Instruction for reference?
5. Is this course of study closely followed?
6. Is the school supplied with a copy of the minimum requirements for admission into high school?
7. Are formal tests given to pupils preparing for township graduation?
8. Is there a definite program of study and another of recitation?

N.B.—An improperly arranged daily program means a fearful waste of time.

9. Is the school library used effectively?
10. Is the home reading of the children properly directed?
11. Does the teacher encourage children to take interest in industrial training?
12. Is the attendance regular?

N.B.—A certificate of award will be granted to each child attending every day in the term.

13. Is the play of children properly directed?

N.B.—Country children should play more.

14. Does the teacher have a list of pupils coming under the compulsory attendance law?

N.B.—Registration lists are obtained from secretaries and should be in hands of teachers before the school opens.

15. Is the compulsory attendance law strictly enforced?

## THE TEACHER

1. Does the teacher receive a salary of at least fifty dollars per month?
2. Does the teacher hold at least a permanent certificate?

N.B.—College and normal diplomas are preferable.

3. Does he attend the county institute, local institute, and association meetings?

4. Does he read the books of the Berks County Teachers' Reading Union?

5. Does he subscribe for and read at least two good educational journals?



6. Does he try to create sentiment in his community in favor of consolidation and centralization of slimly attended schools, where social and physical conditions permit?

N.B.—A parents' association should be organized in every district to co-operate with the teacher to make the schoolhouse more of a community center.

7. Are you endeavoring to make the school a social center?

.....*Teacher*  
 No. .... Secretary of School Board  
 Filed .....

N.B.—This application was specially prepared for the schools of Berks County by Superintendent E. M. Rapp.

## A SELF-GRADING CERTIFICATE OF SUCCESS

CAN YOU GIVE YOURSELF 100%?

FOR THE SCHOOL YEAR ENDING JUNE, 19—.

*The Teacher, 100%*

*A. Personality, 20%*

1. Physical: health, habits, industry, ability to do things, cleanliness, neatness of attire.
2. Mental: moral worth, habits, disposition, temperament, individuality, originality, power of initiative, self-control, sarcasm, sincerity of purpose, attitude toward children, ability to meet people.

*B. As a Student, 15%*

1. Lines of study pursued.
2. Lectures attended.
3. Vacation schools attended.

*C. Professional Development, 15%*

1. Problems of teaching studied.
2. Work in township institutes or teachers' meetings in cities and towns.
  - a) Preparation.
  - b) Presentation.
3. Attitude toward educational meetings.
  - a) Attendance.
  - b) Participation.
4. Lectures attended.
5. Vacation schools attended.

*D. As an instructor 20%*

1. Preparation.
  - a) Before coming to class.
  - b) Assignments.
  - c) Skill in bringing the pupils into the right conscious attitude for the new truth to be presented.
2. Presentation.
  - a) Knowledge of the mind of the pupil.
  - b) Knowledge of the matter to be presented.
  - c) Knowledge of ways of presentation.
  - d) Skill in presentation.
3. Comparison or interpretation based on children's experiences.
  - a) Skill in keeping the minds of all of the children centered on the new truth being presented, and upon their own experience that will help them interpret at the same time.
4. Generalization.
  - a) Skill in leading pupils to draw correct conclusions and to state them well.
5. Application.
  - a) Skill in making pupils realize the new truth as their own. Ability in leading pupils to discover that school problems are life problems.

*E. Government 15%*

1. Two ways.
  - a) Through the conscious use of rewards and punishments.
  - b) Through the inspiration of personality.
2. Two types of order.
  - a) Constrained, unnatural and dead.
  - b) Free, natural, and alive with the busy hum of industry that accompanies the understanding that each pupil is to do his work without disturbing his neighbors.

*F. Community Interest 15%*

1. As illustrated by—
  - a) Ability to keep pupils from withdrawing from school.
  - b) Ability to secure regularity in attendance.
2. As illustrated by—
  - a) Ability to send common-school graduates to high school.
  - b) Ability to send high-school graduates to higher institutions.
3. As illustrated by—
  - a) Care of school property, keeping records, and making reports.
  - b) Sanitary conditions, decorations, and neatness.
  - c) Ability to establish and maintain libraries and young people's reading circles.

- d) Co-operation with teachers, supervisors, and school officials in school plans, exhibits, and meetings.*
- e) Part taken in the plans and affairs of the community.*

Total Grade.....

.....Teacher

At the end of the school year carefully mark the above schedule, and if you find that you fall below “50” quit teaching for the sake of the children, for your sake, and the sake of the State.

[Compliments of Superintendent E. M. Rapp.]

## VII. SUPERVISION OF RURAL SCHOOLS FOR NEGROES

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JACKSON DAVIS

State Supervisor of Rural Elementary Schools, Richmond, Va.

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In March, 1908, there sat around a table in the office of the Superintendent of Schools of Henrico County, Virginia, a group of men who had been invited by him to consider ways of improving the Negro schools of the county. A meeting of the Negro teachers had just been held, the first meeting called to give them aid and encouragement. Dr. H. B. Frissell, who was among the party, told of some extension work that had been done by Hampton Institute in sending out a young woman to visit the schools of Gloucester County, and to help the teachers adapt their work to the home life of the people. After considerable discussion the conference ended, but there was left a precipitate of definite ideas. One was that a trained Negro teacher would be very helpful to the other teachers, to visit their schools and encourage them, placing more definite plans of work before them. Another was that such a teacher might be secured who would introduce cooking, sewing, and in some way help to place the life of the average Negro home on a more satisfactory basis in the elemental virtues of good citizenship. The plan to engage such a teacher for the 23 Negro schools of the county seemed good to the group of trustees, but it was not felt that the county could afford experiments in Negro education. The Jeanes Fund for Negro Rural Schools had recently been established, and Dr. James H. Dillard was in charge of its administration. The situation was laid before him and he heartily approved the plan and agreed to pay the salary of the supervising industrial teacher.

The county was fortunate in securing for this work Virginia E. Randolph, who had taught a rural school in the county for thirteen years, and by her devoted and tireless efforts had transformed a shabby little schoolhouse into a neatly whitewashed, two-room building, with attractive grounds, which served as a school, Sunday school, and center of all good work for the neighborhood. In October, 1908, she set to work to visit the 23 Negro schools, meeting the people and teachers, and asking their co-operation. The patrons were invited to the schools

and organized into Improvement Leagues, and soon all the schools began to take on a different appearance. Simple repairs were made, floors and windows were regularly washed, stoves were polished, walks were laid off, and flowers set out in the yards. Regular periods were set aside for sewing, mat-making, cooking, and various kinds of work that were suggested by the materials at hand.

#### **"HENRICO PLAN"**

This was the origin of what Dr. Dillard called the "Henrico Plan" of industrial training and supervision of Negro schools, and he adopted this method very largely in administering the Jeanes Fund in the southern states. The supervising industrial teacher is appointed by the county superintendent, and works under his direction in as many of the rural schools as may be reached, the salary being paid by the Jeanes Fund. Where the teacher covers a large territory some provision is usually made by the local school boards to defray the traveling expenses of the teacher.

The work thus inaugurated has steadily grown, both in effectiveness and extent. It was carried on in 119 counties in the various southern states last year through the Jeanes Fund, in co-operation with county superintendents and school boards. In Virginia there were last year 17 supervising industrial teachers working in 18 counties. Five new counties have taken it up this year, one county paying one-half the salary of the industrial teacher, and another county paying the whole salary from local funds. Almost every county makes provision for traveling expenses.

In this paper I speak chiefly of work in Virginia which has come under my personal observation. Reports from teachers in the states farther south show that a change equally as great is being wrought there.

#### **CONDITIONS**

The conditions with which the supervising teacher has to work are discouraging. A very real difficulty to many is that the work is new and they do not know just what to do. Few definite instructions can be furnished as the conditions vary so greatly, from county to county, and from state to state. In Virginia, for example, in Henrico County, with a Negro population of one-third of the whole, with a network of trolleys and the progressive influence of a large city, where the farms

are small and the Negroes own little land other than their houses and lots, conditions are very different from those in Charles City, the adjoining county, which has not even a village within its borders, where the Negro population is two-thirds of the whole, where the farms are large and the lands sparsely settled, and 15 per cent of the land is owned by the Negro farmers. This, in turn, is very different from Lowndes County, Alabama, where the Negroes outnumber the whites ten to one, and where the type of farming is entirely different. Perhaps in one respect they all were alike. The schools were very poor, so inadequate to exert an appreciable influence for the betterment of industrial and rural conditions that a great many people and school officials seriously questioned the good of "educating" the Negro. The trouble with the Negro schools was that poorly trained teachers, in very crowded and insanitary buildings, were attempting to teach to the ungraded and unclassified assortment of boys and girls who came to them with the utmost irregularity, the knowledge contained in the textbooks of the course of study. It was not a matter of any wonder that the white people felt that the states were getting a very small return on the money invested in the maintenance of such schools.

That this attitude was the result of the absence of any definite constructive policy these supervising teachers have proven, and their work has done more than any other single cause to enlist the sympathy and co-operation of the white people of the South in Negro education.

Every community is glad to have the sources of disease removed; to see the character and moral habits of the laboring classes improved, so that they will strive for higher standards in their work, in their homes, and in their neighborhood life; and this is what one begins to see in the Negro population of the counties where this work has been introduced. It was inevitable that the forces working for the improvement of rural conditions in the South should have a marked effect on the life of the Negro, but these supervising teachers have been the means of bringing these forces more directly to bear on a section of the population that had been in the eddy of the stream of economic progress. Farm demonstration, the active efforts of the state boards of health in sanitation and the prevention of disease, the new life which has been breathed into the school systems of the southern states, following a constructive policy of consolidation, making possible rural high schools, graded schools, with better buildings, longer terms, and more adequate funds—in these

matters the progress of their white neighbors has furnished the inspiration of example to the Negroes, but there was necessary personal human sympathy and practical wisdom to put these forces into effect. It means much that the Negro is making comparative progress along these lines; it also means much that the white people of the rural South are coming to realize that improving the condition of the Negro, who is at the lowest scale of life in the southern social order, improves automatically the condition of every other man with whom that Negro comes in contact.

To bring the Negro rural schools of the South to any degree of efficiency, there was necessary, first, a stimulus of state aid or aids from outside sources used through the machinery of the state-school system which would enable different counties and school divisions to make a practical demonstration which would, in time, attract the attention of others; and in the second place, it was necessary to arouse the spirit of self-help among the Negroes; and third, this would in time bring about a more generous spirit on the part of local school boards with reference to the distribution of school funds. This is now being worked out under this method of supervision and industrial training. The stimulus and necessary funds have come from the Jeanes Foundation, which has been so judiciously applied to various counties in the southern states; the supervising teachers have aroused the spirit of self-help on the part of Negro citizens, and this spirit in turn is being met with a more generous response by the local school boards.

#### BETTER SCHOOL BUILDINGS AND LONGER TERMS

Under the direction of the supervising teacher, various Negro communities have been organized into school-improvement leagues, and they have provided much needed equipment in the way of desks, blackboards, and additional room. They are beginning to erect new buildings to take the place of the miserable shacks which have often served as school buildings. In almost every case the funds raised by these school-improvement leagues have been supplemented by money from the public funds, and in these ways the improvements are being provided. I visited, last February, with the supervising teacher in one of the counties of Virginia, a schoolhouse which consisted of one small room, perhaps 15 by 20 feet, with 10-foot pitch. The only furniture consisted of 14 old home-made double desks, and painted blackboards, much used and

worn out. There were two small windows on each side. The enrolment at this school was 72 pupils, with an average daily attendance of 40. How this number of pupils could crowd into this room was equally a mystery and a shame. The Improvement League had commenced work on an additional room and the school board had made an appropriation to supplement the efforts of the patrons, who besides contributing in money gave their labor to erect the added room. It is readily seen that a two-room building is inadequate for this number of pupils should they all attend, and perhaps it is well for the health of the community that the average daily attendance has been less than one-half the enrolment. Conditions here were somewhat worse than one usually sees, and yet I know of three other one-room schools, quite as crowded, in this county, but through the efforts of the supervising teacher they are each adding an extra room. One wonders what a teacher, in a schoolroom as crowded as each of these, can do with pupils who attend school only one-half or two-thirds of their time. It is unnecessary to add that the teaching is very poor, and that the influence of the unwholesome environment tends to undo the constructive work of the teacher. The supervising teachers give help to the teachers in these schools, showing them how to grade the pupils in some sort of way, but they are wisely giving most of their time trying to improve the conditions under which the teacher and pupils have to work.

In another county there was a school not so badly crowded, but with poor and irregular attendance. The supervising teacher organized a league to help the teachers make simple improvements and persuaded the patrons to send their children more regularly to school. Their work interested the county superintendent who induced the school board to double the capacity of the building and thus through their united efforts a most attractive building has been erected with proper lighting and heating. The league then painted the building and fenced in the grounds, and the pupils planted out flowers and laid off the yards and walks. The influence of this school with these improved conditions has been such as to make necessary a third room, which is now being erected by the joint efforts of the league and the school board; and a third teacher will soon be provided. The school is, therefore, reaching out more and more to all of the colored children within its district, and their training is becoming more and more adequate.

These examples could be multiplied. The term for the colored



schools is being lengthened in very much the same way. In the average county in Virginia the length of term of the schools for colored children is not over five months. The school-improvement league in many cases raises money to pay the salary of the teacher and extend the term from two weeks to two months. The local school boards are encouraging this, and in one county where the term has been regularly five months, the board agreed to extend the term for two weeks provided the leagues would extend it for an additional two weeks. Eighteen of the twenty schools in the county met this condition and thus had a six months' term. While the Negroes are thus contributing for a longer term for their schools out of their poverty, it must be remembered that school funds in the average county are far from adequate and that any increase in the absence of state aid must be very gradual. On the other hand, the fact that the Negro citizens pay for a part of the added month to the school term causes them to send their children regularly, and to give the school more earnest support than they otherwise would do.

#### THE TEACHING FORCE

Of the 2,300 colored teachers in the public schools of Virginia the great majority have had no training for their work. Except for about 80 graduates from the State Normal School at Petersburg, and perhaps 10 or 12 graduates of Hampton Institute, who take up work in Virginia each year, there are no teachers coming into the work with professional training. The colored high schools in a few of the cities and a few private schools of secondary grade in the state are doing much to supply the need, but few of these teachers drift into remote rural districts which have to depend on such teachers as they are able to secure locally. Usually these have had no other training beyond a one-room school and perhaps a few summer schools. The fact that more than one-third of the colored teachers in the state have been attending a summer school during the past few summers is encouraging. In most counties the teachers have been organized as a branch of the Negro Teachers' and School Improvement League of the state, and meet regularly once a month, taking up at each meeting a definite program. Such meetings are being encouraged by the division superintendents, and the supervising teacher is in many counties doing effective work in helping teachers adapt the course of study to the needs of their schools.

Few pupils remain in the one-room schools long enough to get

above the fifth grade. In Henrico County, for example, which has been having a nine months' term for colored schools for some years, there was only one Negro pupil in the entire county in the seventh grade last year. The county industrial school which was opened this year for pupils above the fourth grade, enrolled 64 pupils, and 10 of these are in the seventh grade. The mornings are devoted to academic work and the afternoons to industrial work. As graded schools are established having adequate facilities and from two to four teachers, pupils are remaining in school for a longer time. In these schools better trained teachers are secured, also longer terms. Under the state graded-school fund, which is distributed by the State Board of Education for the maintenance of two-, three-, and four-room schools erected and conducted on plans approved by the State Board of Education, this type of school is being greatly encouraged. Already a number have been erected, and the number will probably be doubled this year. A feature of the work in each of these schools is practical industrial training in addition to more thorough teaching of the regular branches. The usefulness of these schools in their respective communities is evidenced by the cordial support they are receiving from both the local school boards and the Negro citizens, and such schools will in time do much to supply a more capable force of teachers for the rural schools.

#### EXHIBITS, RESULTS

In most of the counties an exhibit is held at the close of each school year, of the various articles of industrial work made in the schools. The exhibit is usually held at the county seat or in the business center of the county, and some kind of a program is provided, and simple prizes are awarded. These exhibits have been of great importance in popularizing this type of education among the Negroes, in encouraging the Negro children, and in demonstrating to the white citizens the usefulness of this training.

There is usually held each year a meeting of the supervising industrial teachers in each state, at some convenient point. In Virginia for the past three years they have met at Hampton Institute at the time of the Farmers' Conference, bringing with them exhibits of the work from their respective counties. These exhibits have been of great value in improving the character of the work in each county and in stimulating

local interest. The teachers also find it much easier to talk about the different phases of their work when they have the opportunity of comparing the exhibits of the various counties.

The introduction of industrial work into the Negro schools has not always been easy. Many of the parents object to their children doing anything at school but study and recite from books. In many cases the preacher has publicly opposed it, but more often he has joined with the supervising teacher in her efforts for the schools. In one county, soon after the supervisor began work, this issue was raised and the preacher took up the cause and urged the people to contribute funds for better school buildings, for equipment and material for industrial work. In his exhortation he was attacked by members of his congregation who differed from him. The issue got into the local papers and became so warm that a vote was taken asking the preacher to resign. By this time, however, the white people realized the situation and the courage of the preacher, and they with his faithful followers prevailed on the congregation to withdraw their action. Today this preacher is a real leader in the county with the confidence of all classes. The colored schools have made great progress and the industrial classes are doing regular and effective work.

In other communities the opposition lasts longer. Recently I visited a school where the teacher is unable to have any regular day or period for industrial work, because if the parents know of it they will keep their children at home on these days. In another county the supervising teacher was speaking to a meeting of patrons in a school at night. In the course of her remarks she condemned the common dances and festivals which nearly always resulted in drinking and a cutting or shooting affray, and urged amusements of a different kind. This so enraged some of the young people that from the darkness outside a bottle of ink was thrown through the window at the teacher and its contents emptied on her dress. The court records showed that nearly all of the Negroes in the penitentiary or jail from that county were there as a result of "cutting and shooting at Negro fair."

These examples could be multiplied, showing the courage and devotion of the supervising teachers in their contact with the ignorant and prejudiced masses of their race.

## SUMMARY

It will be seen from the tabulated statement showing definite results of the work of supervising teachers in Virginia during the term of 1911-12 that in the 18 counties there are 469 Negro schools, and that 299 of these were visited regularly by the 17 supervisors. The length of term ranged from 5 to 9 $\frac{3}{4}$  months, but an average of 6 months was maintained by reason of the fact that 121 schools with a short term extended the term for one month. There were 9 new buildings erected and 12 enlarged at a combined cost of \$6,268.15, which does not include labor and materials given; 12 schools were painted, 69 whitewashed, 37 sanitary outhouses were built, and 102 schools used individual drinking cups. There were 348 improvement leagues organized, and they raised for school improvement \$13,744.16.

The entire cost of supervision in these counties was less than \$7,000.00, so that these teachers have brought into the school funds twice the cost of their salaries and expenses. Nearly every school that was built or enlarged was the result of the efforts of the improvement leagues co-operating with the local school boards, which have dealt more liberally with the Negro schools since the Negroes have shown such a disposition to help themselves.

But these figures, as illuminating as they are, do not tell all the story. Back of this record of progress, there is a new spirit of self-help, a new interest in the home, in the farm, and in the country neighborhood, and it marks the beginning of a co-operative movement for improvement in other ways. The teaching has been stronger, the attendance has been more regular, and the work of the schools has been more practical than ever before.

Superintendent Coggin writes of the work in Charles City County as follows:

With reference to the work in Charles City, I can say that the County School Board in its last meeting said that the results were such that they could not think of giving it up. All the men are very much pleased and are heartily supporting it.

I can see here a new interest in home life and an effort is being generally made to make home comfortable and beautiful. Cleanliness and politeness with industry have been emphasized with good results. A new spirit is seen among the teachers and a more earnest effort is being made to make their work mean something to the community in which they teach. The work as it is being done here is encouraging to the entire citizenship.

WORK OF SUPERVISING INDUSTRIAL TEACHERS IN THE NEGRO SCHOOLS IN EIGHTEEN COUNTIES IN VIRGINIA—1911-1912

SUPERVISION OF RURAL SCHOOLS FOR NEGROES

105

	Number Negro Schools in County	Number Visited Regularly	Average Length of Term, Months	Number Schools Extending Term	Length of Exten- sion, Months	No. New Buildings Erected During Year	Cost of Same	No. Buildings Rep- aired During Year	Cost of Same	No. Buildings Painted During Year	No. Buildings Whitewashed During Year	No. Sanitary Outhouses Built During Year	No. Schools Using Individual Drinking Cups	No. Improvement Leagues in County	Money Raised by Negroes for Build- ings, Lengthening Terms, Equipping and Improvements
Albemarle...	50	4	6	7	1	0	0	1	\$ 125.00	0	0	0	4	8	\$ 350.00
Alexandria...	5	5	9½	0	0	0	0	0	0	0	0	0	4	5	238.35
Brunswick...	38	10	9	30	1	1	\$ 600.00	0	0	0	2	0	2	38	855.00
Caroline.....	33	12	6	12	1-2	0	0	2	245.04	0	0	4	15	25	570.00
Charles City	14	10	9	11	1	1	1,500.00	0	0	0	7	3	8	10	1,146.15
Chesterfield..	28	10	6½	3	1	0	0	0	0	1	5	4	8	15	370.98
Cumberland	20	16	6	17	1	0	0	0	0	1	11	10	8	20	606.45
Elizabeth															
City.....	8	8	7	1	1-2	0	0	0	0	0	5	3	2	8	155.00
Gloucester...	31	26	6	6	1-2	0	0	0	0	0	23	0	6	30	652.00
Henrico.....	22	22	8½	0	0	0	0	0	0	0	0	4	8	21	2,505.50
Isle of Wight	14	8	5	2	1	0	0	0	0	0	1	0	0	10	638.50
Lunenburg...	24	20	5	1	2	2	700.00	0	0	0	0	0	17	16	1,183.50
Mecklenburg	46	40	5	8	1-1½	0	0	1	15.25	0	2	3	4	38	697.31
Nansemond .	28	16	5	3	1-1	0	0	4	339.50	2	2	0	0	15	481.82
Northampton	24	24	6½	8	1-1	2	1,500.00	1	.....	2	1	2	4	14	900.00
Nottoway...	20	14	6½	4	1	0	0	0	0	0	3	0	5	12	491.48
Prince															
Edward....	42	32	6	4	1	3	900.00	0	0	1	5	1	1	39	796.75
Sussex.....	22	22	5	4	1-3	0	0	3	343.36	5	2	3	6	24	1,105.37
Total.....	469	299	6	121	1	9	\$5,200.00	12	\$1,068.15	12	69	37	102	348	\$13,744.16

## HOME GARDEN AND CANNING CLUBS

One of the most interesting developments of the work is the co-operation of the supervising industrial teacher with the farm demonstration agent in working during the summer months with clubs of girls who raise home gardens and can the vegetables and fruits of the gardens for winter use. This feature of the work was taken up in Virginia last year and four of the supervising teachers were employed during the summer months; this year eight were employed for the entire twelve months of the year. Under this plan, at the close of the school term, they organized Girls' Home Garden Clubs. They visited the girls in their homes, met them in groups, gave them practical instructions for their gardens, and taught canning, cooking, and sewing in the homes. In many ways the summer work of these teachers has proven of even greater value than their work with the schools, for they are touching directly the homes of the people and bringing about changes that are having a far-reaching effect. In the summer of 1911 this work was inaugurated in four counties and a fair start was made. The gardens were cultivated with varying success; many practical difficulties were encountered, but in all, the girls put up under the direction of the teacher, about one thousand glass jars of vegetables. The tabulated statement shows the work that was accomplished in three of these same counties and five additional counties during the summer of 1912.

A page from the report of one of the teachers indicates the character of the work:

During the month have put up 603 quarts of fruit and 68 quarts of vegetables—total 671. Have dried 12 pounds of apples.

During the season 769 quarts fruit have been put up and 68 quarts vegetables—total 837 quarts. The late bean and tomato crops are yet to be canned.

Two of the club girls—ages 11 and 14—made all the yeast and bread for their respective families. Another girl aged 12 years, but who is not strong enough to make bread for her very large family, supplies her own and her next neighbor's family with yeast.

In most homes the club girls are doing the entire canning for the family and some for outsiders.

The girls learned to do these things in our summer clubs. Their mothers are very much pleased to be thus relieved of these duties. Our clubs are never at a loss for place for next meeting. Invitations usually come two and three weeks ahead.

My trip through this county in 1912 was particularly interesting in enabling me to compare the work of this summer with last summer

## SUMMER WORK OF SUPERVISING INDUSTRIAL TEACHERS

IN EIGHT COUNTIES OF VIRGINIA, APRIL-SEPTEMBER, 1912

County	No. Girls in Garden Clubs	No. Gardens Planted	No. Cared for Reasonably Well	No. Girls Planting Vegetables for Fall	No. Canning Demonstrations Given	No. Jam Put up by Girls	No. Jam Put up by Mothers	No. Cooking Lessons Given	Other Work Done
Brunswick.....	34	30	18	■	20	310	775	12	Had lessons in sewing each week with club girls.
Caroline.....	53	39	25	1	15	213	92	9	Planted flowers. Held entertainments for school improvement.
Charles City...	22	17	15	3	12	656	1,252	7	Homes generally whitewashed. Cooking lessons given in five homes to mothers.
Chesterfield....	26	15	15	6	45	1,779	..	20	Besides the canning and cooking lessons, sewing, cutting and fitting, crocheting, drawn-work, and basketry were taught.
Cumberland....	17	24	17	3	17	327	30	6	Hints on housekeeping, personal neatness, and cleanliness were given to both cooking and canning clubs.
Elizabeth City..	■	24	10	16	15	165	..	6	Nearly every home visited whitewashed. Three neighborhoods gave entertainments to raise money for cooking outfits.
Gloucester.....	50	38	25	20	32	30	3,240	18	Lessons given in cooking, sewing, table manners, and serving meals.
Nottoway.....	21	15	15	10	16	466	617	■	Each girl fixed up her yard, planted flowers, and tried to make her home more attractive inside. Several girls raised poultry. Many homes whitewashed.
Total.....	267	202	140	67	172	3,946	6,006	86	

when it was first started, as I revisited some of the same homes. Most of the homes are on small plots varying from five to twenty-five acres, and they are neither painted nor whitewashed. The men work out on the so-called public work, or as farm hands. With poor dwellings to start with and a handicap of poverty, any improvements will necessarily be slow. Last year many of the gardens were allowed to grow up in weeds, or were destroyed by chickens or cows. In other words, the gardens were about as shiftless as the homes.

All the gardens are very much better cultivated this year, and I did not see a single one that had been neglected. The chickens were either kept out, or the garden was put far enough from the house not to be bothered by them. Practically every girl will have a garden for the late fall. Already they have put up 837 quarts, which is three times as much as they put up in the whole season last year.

I saw several homes that were rebuilt or enlarged, but as yet little or no whitewashing has been done. At one home that we visited the girl was absent, but her mother showed us a long row of jars of fruit and vegetables which she had put up, and then brought out some dried apples and vegetables which she had put up, under the teacher's directions. Then she brought out some that she herself had dried in the traditional way. Her daughter's work was in every way superior and she said that she was going to use the new method in the future.

A few days later I took a similar trip through Charles City County with the county superintendent and the supervising teacher. The Negroes in Charles City are more prosperous than in Chesterfield, and the homes that we visited were on average small farms. I was struck by the fact that practically every home was neatly whitewashed, together with many of the fences and outbuildings, and that everything about the homes seemed to be in good repair. We found back yards and back porches thoroughly clean. Superintendent Coggin told me that this had been very largely brought about by Mrs. Gray in the two years in which she had been working in the county. He said that Negro homes of this type used to be the exception, but that now they were the rule in this county. The gardens were mostly well fenced and cultivated. Mrs. Gray's services were very much in demand, not only by the girls but by their mothers who wanted to learn better ways of canning.

At one home that we visited a widow and several children were



living. The father had recently died of tuberculosis. During his sickness Mrs. Gray had visited the home and shown the mother the necessary precautions to take in order to prevent the infection of the rest of the family. By her help all the sanitary measures were carried out and the other members of the family are probably saved from the disease.

Malaria is more or less prevalent in Charles City, but it is being reduced each year. Many of the Negroes are screening their houses and digging deeper wells.

Oddly enough, our trip ended at the Negro cemetery, where there was a gathering to clean up the cemetery. It needed it; but the gathering was an example of neighborhood co-operation expressive of a general desire to clean up things and make the county a better place to live in as well as to die in.

It is impossible to estimate the helpfulness of the visits of these teachers to the homes of the Negroes, or their influence on the girls who belong to the Garden Clubs. The girls and some of the mothers are getting a kind of education that is having a marked effect upon their homes. It meant a great deal for Miss Jefferson to get the girls and their parents in Chesterfield to take the home garden seriously—to put it where the chickens would not destroy it, or put a good fence around it, then to cultivate it approximately near to exact directions. The good results have demonstrated that it pays to take care of the garden, and in learning to do this they are learning to put more thought and skill into what has been household drudgery, but what may become household art.

I have never seen more grateful appreciation than was shown to these teachers in the homes in which they have helped, except possibly that shown by the Negro farmer to the demonstrator who has helped him to double his corn crop.

It will be seen that some of the teachers during the summer do much of their work with the women in their counties. The following letter has come into my hands from the Women's Home Improvement Club, which was organized by the teacher in Gloucester County. It shows both the character of the work which has been done and the interest which they have put into it:

In early spring Mrs. Isabella Smith called us together and spoke of the many things we, as housekeepers, might accomplish toward improving our

homes, if we would organize as a club and start to work. The first suggestion was to look to the canning of vegetables and fruits. As an outcome we can safely say that more berries, vegetables, and fruits have been canned and more dried than ever before in this community, saying nothing of jellies and pickles.

A new inspiration has gone out from one housekeeper to another, and one seems to be vying with the other as to who will have the greatest number to report. Now that the canning season is fairly over, we are turning our attention to handicrafts; some have started door mats, and some table mats, and some picture frames. We find a great deal of pleasure in our work and feel it a blessing to have one in our midst who is capable of instructing us in so many ways.

We ask an interest in your prayers that much success may attend our efforts. Taking God as our great leader. Done by order of the W.H.I. Club.

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# THE THIRTEENTH YEARBOOK

OF THE

NATIONAL SOCIETY FOR THE STUDY  
OF EDUCATION

## PART I

SOME ASPECTS OF HIGH-SCHOOL INSTRUCTION AND  
ADMINISTRATION:

RECONSTRUCTED MATHEMATICS  
SUPERVISED STUDY  
NORTH CENTRAL HIGH SCHOOLS

BY

H. C. MORRISON, E. R. BRESLICH, L. D. COFFMAN,  
W. A. JESSUP

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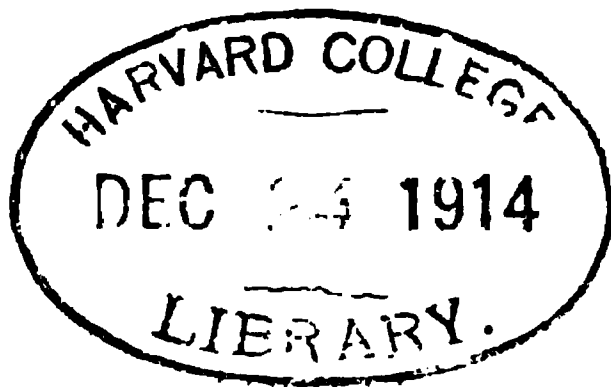
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NATIONAL SOCIETY, MONDAY, FEBRUARY 23, 1914, 8:00 P. M



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## PREFACE

The rapid growth and modification of American high schools in recent years have developed a large series of problems which are of interest to thousands of administrators and teachers. A number of these problems will be discussed in this yearbook and in others that are to follow. The policy which has characterized the preparation of the yearbooks in recent years will be continued, namely, to publish discussions that will deal directly with the practical problems of readjustment that now confront American educators, and to include descriptions and suggestions that will prove of direct practical value to teachers and administrators in solving these problems in their own schools.

The reconstruction of the material of all the subjects in the curriculum is one of the most pressing needs, owing to the new type of high-school students now constituting such a large part of the student body. The reconstruction of mathematics is one of the best examples, since the organization of this subject has been so definite and so fixed for many years. Superintendent Morrison discusses the needed readjustments very concretely, but at the same time in close relation to the fundamental principles that should determine the selection and arrangement of the material of any subject. Hence his paper will prove of interest not only to teachers of mathematics but to teachers of all subjects as well.

The desirability of substituting supervised study during school hours for home study is being urged by many parents and administrators and in the public press. Some school systems such as that of Sacramento, California, have achieved reforms along this line upon a very broad scale, but in many other places teachers are entirely ignorant of the possibility of instituting such reforms. Mr. Breslich, in his paper, presents the fundamental principles at the basis of the movement for supervised study and a review of the experiments that have been tried in various parts of the country.

Many reforms in instruction, however, cannot be undertaken successfully in some places owing to the quality of the teaching staff, their tenure of office, and the number of subjects which they are required to teach. Optimistic educational theorists and reformers often overlook

these limitations. The first step in the direction of improved conditions among the teaching staff must be based upon a clear understanding of the actually existing conditions. The paper by Professors Jessup and Coffman present important information for this purpose.



# I. RECONSTRUCTED MATHEMATICS IN THE HIGH SCHOOL

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## THE ADAPTATION OF INSTRUCTION TO THE NEEDS, INTERESTS, AND CAPACITIES OF STUDENTS

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*General dissatisfaction with results of mathematical instruction.*—Few are satisfied with the present mathematics situation in the high school, particularly in the first two years of the high school. Dissatisfaction is found in the college faculties which deal with the product, among the mathematicians who are looking for a foundation for productive scholarship, among the teachers who are looking for something better; and dissatisfaction coupled with ridicule is found among the business men, engineers, and others, who expect mathematics learned in the school to function in the practical affairs of life. The purpose of this paper is an attempt to analyze the situation, to find out what is the matter with mathematics in the high school, and if possible to throw some light on the way out.

*Three factors involved: students, social needs, available subject-matter.*—Whatever the solution ultimately may be found to be, it can confidently be stated that the three chief factors of the problem to be solved here, as in the case of all other curriculum problems, are: (1) the pupil and the laws of his mental growth and development; (2) the social needs which the school as an institution must serve; and (3) the availability and use of the material under discussion—mathematics in this case—as an instrument for such pupil development and his adjustment to such and such social needs or purposes.

The existing mathematics of the high school, and particularly that of the first two years, however taught, falls far short of satisfying the known laws of adolescent growth, and it bears little relation to any known social needs. Referring to existing mathematics, the writer of course has in mind first of all the formal algebra and geometry usually found

in the first and second high-school years; and to these courses may be added the solid geometry, trigonometry, and advanced algebra commonly taught in the last two years.

#### I. THE STUDENTS, THEIR NEEDS, INTERESTS, AND CAPACITIES

*Subject-matter must function throughout the process of learning.*—The fact, or rather set of facts, at the bottom of the whole matter is the pupil himself, and he is the most stubborn fact of all. Everything must conform to his nature, whatever that may be. You may teach him much or little, but what you really teach will depend entirely upon what he can and will learn. For centuries untold schoolmasters have had their minds centered chiefly upon what they have thought he ought to learn and know, and seldom upon the discovery of principles which would reveal to them what he could and would learn. Now nothing is more deceptive than the appearance of learning which the average youth can present. It is possible to give the simulacrum of learning to almost any curriculum material from the multiplication table to Sanskrit. It is simple enough, that is to say, to cram a youth with learning which will enable him creditably to pass off a recitation or an entrance examination. That depends upon the force and skill of the teacher. But to ground the pupil in learning which will react to the only real test, namely, "will it function?" depends as much upon the nature of the pupil's mind and the stage of his development as upon the professional tact and skill of the instructor. Whatever the subject taught or the teaching, if it is to be in any way productive and worth the while, it must not only respond to the function test, but it must have a chance to function all the way through the process of learning. That is, as it seems to the writer, indubitable in the light of all we know of the educative process.

*Present mathematics cannot function even in hands of skilled teachers.*—Now here is the first real trouble with the mathematics of the high school. It not only does not function in the hands of the poor teacher but it cannot function even in the hands of the skilled teacher. That is to say, there is nothing to which most processes in algebra or geometry, or indeed arithmetic, can be applied except to more algebra or arithmetic. Hence, while the pupil may for the time being attain perfect marks, his learning becomes no part of his stock of usable ideas, and he straightway forgets all about it until he is put through a naïve "review," which in

its turn needs to be "reviewed" when he becomes a college Freshman or enters a shop. The first conclusion then is that we must find a kind of mathematics material not only which will function but which does function in some other field than mathematics while it is being taught, and such use must further respond to a real need felt as such at the time by the pupil. So only can mathematical concepts become realized.

*Disciplinary argument not sufficient justification.*—The objection will of course be made that mathematics is a "splendid mental discipline." Well, so is sawing wood or playing good football. Unless we can find some other justification for courses in the high school, many of them will undoubtedly presently travel the road of Greek, and we shall have little that can be called education left. It probably is not necessary to argue the disciplinary question. Suffice it to say that the algebra and geometry of the standard mathematics curriculum of the day represent the mental discipline conception of the educative process at its best. If they cannot justify their existence on the ground of their fruits, then the disciplinarians have much to explain.

It is fairly to be assumed at this day of the world that unless a course can justify itself as offering to the pupil a system of ideas which help to interpret to him his environment and enable him to react to new and strange situations in that environment, then such a course has little place in a modern educational institution.

But laying aside the purely disciplinary argument in its extreme form, it may be objected, with reference to geometry especially, that here is a method of thought in which the educated man should be trained. The contention might be granted in part if the thinking of the modern world were done in the form of the syllogism and in mathematical terms as was once the case. The fact is that the thinking of the modern world is done mainly in inductive form and in terms derived from biology.

*Mental characteristics of adolescent students.*—Let us return to the pupil and find out what we know about him. Little enough in scientific form, no doubt. But still an immense amount of information as to his habitual works and ways is fairly well made out. We owe a great debt to the noble army of child students led by the veteran Stanley Hall.

In the first place, this youth when he comes to the high school is, and has been for about two years on the average, an adolescent. If a boy, he is a clumsy, awkward chap, who has lost all the nimbleness and agility which he had three or four years ago, and is now chiefly occupied

physically in keeping from "falling over himself" and in keeping out of sight. Mentally his mind is dreaming and seeing things never dreamed of before. If a girl, well a mere man had perhaps best not try to do justice to her. Probably, in her own way she is at bottom in the same state as the boy, though she can laugh, or at least giggle, it off, while he cannot.

*Adolescence not a period for formal drill.*—Without attempting any lengthy analysis of the adolescent period, or yielding to the temptation to enlarge upon its marvelous beauties and possibilities, one conspicuous and enormously important and indubitable fact stands out: it is the worst period between the shedding of the milk teeth and the grave for anything like drill. It is a period when new ideas, especially those of a general spiritual type, are entering the opening mind in hosts of new forms; when the physical organism is undergoing a process of complete reorganization and readjustment; and when mental attitudes and powers are undergoing a similar and corresponding change. In these days, Nature cries out to the schoolmaster with his "character-building" schemes: "Hands off; this is my job; wait." Nothing could be less suitable to this youth's nature than the Latin beginner's book and the algebra and the formalized literary analysis with which the modern schoolmarm, just out of college, but yet ten thousand years older than the youth, greets him. The wonder is not that "elimination" takes place at a frightful rate at the beginning and during the first year of high school, but rather that anybody goes to high school at all.

*Adolescent student can grasp mathematical concepts.*—Now, it does not at all follow that the adolescent boy or girl is incapable of mathematical concepts, or necessarily finds them distasteful. As has been pointed out above, a prominent characteristic of the mental attitude of the adolescent is an openness to entirely new types of ideas as well as an entirely new set of reactions. It is very likely true that there is in the adolescent mind a capacity for apprehending new mathematical concepts of a much higher order than has generally been thought possible. Nor is it to be reasoned that the youthful mind is romantic—vague term—while mathematics is deadly unromantic, and therefore boy and bud alike will have none of it. Nor is the mind at this or any other age to be viewed after the utterly false analogy of a muscular organ which is weak in childhood but grows stronger in youth and powerful in maturity, and thus becomes capable of grasping ideas by sheer force

of a sort of energy only in the prime of life. Rather does it seem to be true that the ability of the mind to apprehend new ideas is related to the ideas already actually in mind, and the ability to assimilate new notions and make them a part of the intellectual capital is largely a question of opportunities for such ideas to function in the interpretation of some feature of the environment. There is, for instance, nothing in the nature of the case to prevent the adolescent from apprehending and assimilating the concepts of the calculus.

The difficulty with the present high-school mathematics, especially algebra, is not in the intrinsically abstruse character of the concepts, but rather (1) in the extreme difficulty of finding an opportunity for them to function, and (2) in the fact that the algebra as taught is almost entirely an organizing and drill subject.

*But the concepts must be brought within the range of his experience.—*

You have here a pupil whose whole life is in a state of profound change, in whom a habit established today tends to break up tomorrow, and you start out to organize a set of experiences which he has never had. You have a being who represents, phylogenetically, a superman as compared with what he himself was a year or two years since—a prodigious leap which represents perhaps the cultural evolution between the stage attained by the Iroquois and that reached by the earlier Greeks. It isn't that he is not capable of a high order of thinking; he simply hasn't had the experience with which to do his thinking. He is eager and anxious for new ideas; he never will be more so; but he cannot effectively formulate ideas which form no assimilated part of his intellectual equipment. The same boy will perform marvels of wireless telegraphy the understanding of which he has gathered from his juvenile periodical, but he will gaze stupidly at his science teacher who talks to him of the elementary units of electricity, and ultimately fail in his examination. Five years more of normal growth and that same formalized physics will interest him a great deal more than the construction of electrical apparatus.

*Fundamental attitudes of girls even less favorable for abstract mathematics.*—Before leaving this part of the discussion, attention ought to be drawn to the girl side of the question. Not only will the general statement of the case apply to the girl as well as to the boy, but there are further special considerations to be urged in her case. The programs of most existing schools have been evolved in a line-descent from the

earlier boys' schools, and it is only recently that programs have begun to show a special adaptation to the proper education of girls. Indeed, the protagonists of equal educational rights for the sexes have often in the past rather resented any teaching for girls different from that for boys, no doubt deeming it their primary duty to demonstrate that women could compete with men successfully on their own ground. And of course they have amply succeeded and more than succeeded. But in our analysis of the difficulty which seems to exist in the present mathematics situation, there are important special features true in the case of girls which are not true in the case of boys. Whatever is true of the mental attitude of adolescents in general to mathematical culture, it is also true that boys are normally organized to react favorably to the functions of which mathematics must become one of the chief instruments of interpretation. The man in brief is normally organized through bodily and mental development and inheritance to deal with the outward material environment, and for that purpose in civilized life he must rely largely if not mainly upon mathematics in some form. In brief, his attitude sooner or later is one of practical and normal interest. The woman on the other hand is organized both bodily and mentally for dealing with an entirely different set of functions, in which mathematics plays a small part. At this particular period she must be full of new ideas and insights totally different from those which are coming to the boy of the same age. In the nature of the case her fundamental attitude must be different and relatively less favorable even than that of the adolescent boy to the formalized mathematics of the early secondary school. His attitude doubtless is "I don't see the object of all this, but I can see that I am likely to have to learn it," while hers would conceivably be expressed thus, "This is evidently a part of education and of course it is my duty to learn it, but I hate it just the same."

## II. THE SOCIAL NEEDS WHICH HIGH SCHOOLS MUST MEET

*High schools being rapidly reorganized to adapt to changing social needs.*—Ordinarily, we might at this point proceed to the mathematics side of the question at once and scrutinize the essential function and purpose of mathematics in the educative process. We cannot do that for we are obliged to consider what kind of an institution it is for which we are studying program material. And the high school is conspicuously the institution in the whole course of education which is today in an unsettled state. The ancient landmarks have been torn up and the

boundaries are in process of revision. Whether rightly or wrongly, justifiably or otherwise, that is the case. Clearly it makes all the difference in the world in our view of the mathematics situation, or that of any other part of secondary curriculum, what view we take of the essential purpose and function of the high school as an educational institution.

*High schools becoming institutions for all the people.*—Conditions have changed. A generation ago the high school was an institution which few pupils reached. Life was relatively simple and the common school education was felt to suffice for the great majority. But since the eighties of the last century high-school enrolment has been outrunning population in growth all over the United States. A relative increase of five, seven, even ten times over the growth of population for twenty years has not been uncommon. Over a large extent of country, outside of the great metropolitan centers with their special problems, we have reached a stage where the high-school enrolment is often considerably in excess of half the maximum possible and, as has often been pointed out, this phenomenon is not peculiar to the United States. Now this fact points unerringly to the conclusion that the expression "common school" must be extended and applied to the secondary school. Indeed, in several of the states, it is hard to distinguish, on the face of the attendance returns, where the elementary school leaves off and the secondary school begins. Pupils do indeed drop out of school all along the line, but the loss is often quite as conspicuous between the fourth and fifth grades, or between the fifth and sixth, as between the elementary school and the high school; and the loss between the first and second high-school years is often more pronounced relatively than anywhere else. So the high school is rapidly becoming on the whole not the "people's college," but a part of the educational scheme common to all.

*These social changes affect curriculum and methods.*—Now these changes have altered greatly both the curriculum problem and the pedagogical problem in the high school. The former because the purpose and social function of the school has necessarily changed with the change in its clientèle; and the latter because the faculty has no longer to deal with a selected high-grade home background, but with a heterogeneous mass from every sort of social stratum.

*Differentiation now should fall at beginning of adolescences; not at end of compulsory period.*—The first significant principle which stands out clearly is the necessity for placing at a lower level the line of cleavage



between the elementary and the secondary school, between the pedagogy applicable to children and the pedagogy applicable to youth. The still prevalent eighth-ninth grade division point is probably related to a process of evolution which had gradually brought about a completion of eight years of work at the average age of fourteen, when by common agreement in most states the age of compulsory education has ended. With the rapid increase in the proportion of children passing over into the high school has come a curiosity as to why the first eight grades should be in the elementary school and the last four in the high school. Twenty years ago the Committee of Ten foreshadowed what is rapidly coming to be seen to be a fundamental principle, namely, that the division point should come at the dawn of adolescence rather than at its most critical point. Returns seem to indicate the thirteenth year in boys and the twelfth year in girls as good working approximations of the dawn of the adolescent changes. This corresponds very well to a division point between the sixth and seventh grades, which teachers have for a long time suspected to be the right one.

The changes above referred to, the rapid development of the present phase of society, and the increase of learning bearing upon the whole educative process, have together made necessary a careful re-examination of the whole theory of the purpose of the secondary school as a social institution.

*Detailed, concrete aims, related to social needs, must replace formal aims.*—We may note in the first place that no longer will vague phrases about mental discipline and character-building answer the question. Like the patriotic fervor of the average party platform, they sound well, but like party promises they are hard to carry out. The trouble is they don't mean the same thing to any two persons. Nor will such expressions as "a liberal education," or "education for citizenship," or that more recent and reverend teachers' convention title, "education for service," throw much light on the kind of mathematics we ought to teach.

The plain fact is that every school in every age has been at bottom an attempt to adjust its pupils to the requirements of the society in which they live. If we were still in the age of chivalry, we should probably find the school of the esquire a first-rate secondary school. If society in America were aristocratic, with a landed nobility based upon primogeniture, the problem would be simple. Existing secondary schools could be named by the reader which are very well adapted indeed to



furnishing the adjustment needed by such a society. But that is not what the democratic society of the day, organized on an industrial basis, calls for; and the state as the will of society simply and ruthlessly overrides the disputations of the doctors and bids us get back to the original purpose of the school, namely, getting pupils ready to live effectively in our own twentieth century United States—not in the eighteenth century, nor in Germany.

*Cultural course related to contemporary needs will continue to be prominent.*—Now there are two natural curriculum responses to the social adjustment theory of the high school. Your curriculum may still be strictly educative or developmental, or it may be technical with a view to immediate special training for life-work or vocation. Probably both types of school for youth above the age of about twelve will necessarily be a part of the general educational scheme for many years to come, though with the steady growth in the present trend of enrolment and with the amelioration of industrial conditions there is probably little doubt that cultural education will claim a steadily increasing majority of pupils, over technical education, up to the age of eighteen and beyond. Even now, it is a striking and significant fact that most investigations of the causes of dropping out of school do not reveal economic reasons but rather lack of interest on the part of the pupil as the real cause. Here, as so often elsewhere, popular guesswork is very much at fault.

*Mathematical courses should be differentiated for cultural and technical purposes.*—In any case the new cultural high school and the technical high school demand on principle very different mathematical material from that which the present high school offers on the basis of the disciplinary conception of the educative process.

The solution on the side of the technical high school should in principle be very simple, to wit: the thorough teaching of such processes as are needed in the industry for which training is given followed by drill to the point of efficient functioning within a narrow range.

But because, as it seems to me the facts indicate, the cultural high school is now, and will increasingly continue to be, the type of secondary school which the American school man will have to administer and in which the majority of our secondary teachers will work, I shall deal with that type only.

*Development of adaptability in adolescents is the aim.*—Now the kernel of the theory upon which the school will be administered is the development of adaptability in adolescents, according to the laws of their mental

growth. A great deal might be said upon the subject of adaptability as the greatest need of the industrial world, but I will refrain. At all events, we have here the central characteristic of the educable being, for adaptability is the standard by which all mental development above the level of tropism is to be measured.

To be more concrete, I mean that the modern American high school must produce a young man or young woman, not necessarily with specific training, but capable of intelligent adaptation in any situation in which he or she is likely to be placed. Let it be pointed out that the tragedies of modern vocational life lie, not so much in the fact that men are possessed of no special skill, as in the fact that rapid industrial changes mangle the careers of thousands who can do but one thing. As Henderson has so well said, we do not need to put industry into education half so much as we need to put education into industry. Be it remembered that adaptability and skill are exactly as much reciprocal terms in psychology as are power and speed in mechanics.

Again, lest we forget, let it be observed that the developed capacity of the individual to react to a strange situation is a question of his possessing a working system of ideas, and not of his having exercised interminably a mythical mental faculty.

*Some elements of knowledge common to all zones of adaptability; others less common.*—Now, it is perfectly clear that no one high-school pupil can be put in possession of all existing learning, or even of the elements thereof, as the above statement would seem to imply. Certain elements are common needs of everybody, for instance, knowledge of the human body, the heritage of the race in various institutions and a racial literature, in art, in ethics, and so on. Some elements are common to two or more zones of adaptability, as, for instance, the biological sciences to the housekeeper and the agriculturist. But the specific elements which go into an understanding of the fundamental problems of the homemaker are widely different from those needed in the educational equipment of the engineer or the attorney.

*High school must discover broad zones for special talents of individuals.*—Parallel with the fact that it is doubtless impossible to cover the whole range of learning in the high school, and as a consequence to attain an adaptability to any possible situation in life, is the further fact that it is undesirable by reason of the developing individuality of the adolescent. One of the chief functions of the secondary school is and must necessarily

be the furnishing of opportunity for a selective process to take place upon the native bent of a pupil, to discover to each so far as possible the broad zone within which his future activity will normally lie. Here is a specific difference between the elementary school and the secondary, for the child differs from youth in point of individuation fully as much as practice has sanctioned a difference in method between schools of the two grades named.

Children are not all alike, but different boys of ten are vastly more alike than are the same boys at the age of sixteen or seventeen. Children differ, but they differ in respect to bodily health, temperament, natural endowment, etc.; while adolescents begin to differ as adults differ not only in these respects, but much more markedly in point of interest in and natural adaptation to different types of activity. Children are as much alike as a horde of savages; adolescents begin to be as different as civilized men.

*High-school curricula should be differentiated to parallel broad zones of adult activity.*—Programs in high schools have for twenty years been prevailingly made up of curricula which differ from each other only in relative emphasis laid upon different phases of the same science-arts round of work. It is becoming increasingly clear that every high school should somewhat sharply differentiate its curricula along the lines of the broadest zones of adult activity. In the larger cities this division has already been foreshadowed by the erection of distinct types of high schools, to wit: the classical high school, the high school of commerce, the mechanic arts high school, and latterly the domestic arts high school. Similarly there has recently been developed in rural communities the agricultural high school. Clearly the pathway of evolution is plainly blazed out. We may go further and some time develop other high schools, as, for instance, in some parts of the East and South, high schools of the textile arts. Doubtless there will be many abortive attempts to include within the field of the high school industrial activities which are incapable of educational use, for many industries have already become so highly mechanized as to possess but little thought content for the worker.

*Chief zones and resulting curricula.*—There then is a picture of the well-developed program of today in a high school, enrolling say 250 pupils, and located in the typical community of say 10,000 people with industrial interests ranging all the way from a zone of farms a few miles

out to several highly developed industries in town. Such a school should offer well-differentiated curricula calculated to furnish the educational foundations for: (a) homemaking and housekeeping; (b) agriculture; (c) mechanical and engineering pursuits; (d) commerce; and (e) the professions through its college preparatory curriculum probably reorganized somewhat in both content and method.

In the large city, these different curricula will probably be as now independent schools. In the smaller communities probably a selection will more and more be made adapted to the chief industrial activity. In these different curricula, the mathematics and the science taught will need to differ greatly and they properly should.

*Appropriate mathematics for each of these curricula.*—Whatever mathematics is taught, be it remembered, must be only such as will be capable of functioning in enabling the pupil to interpret new situations as they are presented to his understanding, and which as a matter of fact does constantly so function in the learning process. We have been so long accustomed to the degradation of mathematics to the plane of a scourge calculated to mortify the spirit, if not the flesh, that it is still hard for many of us to accept fully the new point of view.

For the girl engaged in acquiring the educational foundation for her normal life-work, but little mathematics beyond the simple arithmetical computations which she has brought with her from the elementary schools will be needed.

The mathematics of the educated farmer is, first, a good deal of practical arithmetic, but not involving any very abstruse processes; second, a good conception of the properties of plane and solid figures; third, plane trigonometry and surveying. All of these the student will use in his studies and of them he will make frequent use in his vocation.

In commerce, arithmetic and certain of the processes of algebra applied to the solution of practical commercial problems will be needed.

In the mechanic arts there is an extremely interesting field for much more mathematics than we now commonly find in the secondary school. Arithmetic enough the boy already has. He needs algebra enough to understand more useful processes, and will use constantly a considerable range of constructional geometry. But more than that, his work will give him a concrete basis for trigonometry and the elements of calculus, the latter a perfectly feasible high-school subject when taught in connec-

tion with other studies and with shop work in which it has a constant opportunity to function, as I shall attempt to show later.

The mathematics of the college-preparatory curriculum will of course relate itself to mathematics in the college, until colleges conclude to relate their mathematics to what can be done in the preparatory school.

*Special provision may be made for brilliant students of mathematics.*—The question not unnaturally suggests itself, what place is there in the secondary school for the “born mathematician,” for the youth who possesses a native bent for mathematics, and who ought eventually to become a teacher of the higher ranges of the subject and a productive scholar? It must be remembered that here, as in similar cases in other branches of learning, we are dealing with extremely rare instances. Probably, from 1 to 1½ per cent of all high-school students, take them as they come, have some incipient talent of this type. They are the geniuses of their generation, and no man has yet formulated the psychology of the genius. The trouble with most high-school mathematics courses is that they have been laid out on the theory that all pupils are variations or mutants or geniuses of this type. It is not, nor can it well be, sound public policy to adjust the school to the needs of these special types, any more than to the corresponding variations from normal at the other end of the scale. Probably all large high schools, say those enrolling 500 or more, should provide special courses for divisions of these people permitting them in every way to fulfil their bent. In other smaller schools, it is a pretty poor teacher who will not gladly put in extra time with these brilliant minds.

There remain two other considerations related to the social purpose of the school as an institution which must be considered.

*Moral purposes.*—The first of these is the moral purpose of the school. Mathematics particularly has been thought to have a special moral or quasi-moral purpose in the school on account of its excellent adaptation to disciplinary ends. The question then arises, in this analysis of the secondary school of the day, or at least of the immediate future, have you found any place for character-building?

*Mathematics as such can contribute little to moral training.*—The answer is, I think, that essential morality is a question of the relations of individuals in society, and that all we mean by moral education is the adjustment of the pupil to the standards of life in society sanctioned by the highest social ideals of his time. And this is not a matter of book

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but rather arises, if it arises at all, from the interaction of the various personalities composing the school, especially of course from the reactions of the pupil to the personality of his teachers. Now, personality does shine through the pages of literature and of history and it is reflected in the fine arts, but in the very nature of the subject-matter mathematics is as devoid as possible of personality. The systematic and effective moralization of the pupil is of necessity largely, if not wholly, a question of the organization of the common life of the school—its athletics, its social intercourse, its public opinion and the means for the expression of its public opinion, its free intercourse between faculty and pupils and so on.

*Training in exact thinking through mathematics.*—One more precious feature of the mathematics of the secondary school, namely, the use of mathematics for “molding the mind of the pupil in exact methods of thinking.”

Of course this is the citadel of the disciplinary position. It has been, I think, amply demonstrated that the mind which has been molded to the method of mathematics will use that method in mathematics, and in thinking allied to mathematics, alone. The mathematician himself behaves in about the same manner as other mortals in a social or a political situation, but he reacts more efficiently in a certain type of scientific situation than does he who is devoid of mathematical training. The “method of mathematics” is a highly desirable asset to certain types of education, but the method will certainly not be acquired through a period of abstract study of algebra and geometry. It can only be acquired through the constant functioning of the mathematical processes learned, in the interpretation and solution of problems presented by other subjects.

### III. CRITICAL EVALUATION OF MATERIAL AVAILABLE IN MATHEMATICS

It has already been stated that in the analysis of any program problem presented by the school, three factors must be considered. First, the nature of the pupil must be known. Second, the general purpose of the school as a social institution must be investigated. Third, the availability of the material under discussion must be criticized.

Given a body of pupils in the adolescent period whose development proceeds according to natural law, the secondary school has as its function first to direct their several individual native abilities into the proper

broad zones of adult activity, and then to equip them with those organized systems of ideas which will enable them to interpret the new and strange situations in which they will be placed. The question then arises, what has mathematics to offer which is essential and valuable in this process?

*The use of mathematics as a tool in scientific thinking is most important.*—First of all, mathematics like language is in the main a “tool subject,” and not one possessing inherent value of its own. Language study would be of no consequence were there not literatures to be read, and thought to be expressed. Mathematics is of no value to us except as there are sciences to be studied. There are perhaps few better criteria of the trained mind than its distinguished ability to use mathematics as an instrument for the mastery of scientific truth. Indeed, it is claimed by many, as is well known, that a science is exact and of full stature as a science in proportion as it is capable of mathematical expression. The educated man endeavors to reduce all his important experiences with the material world to mathematical terms and thus to proceed confidently from step to step in his career. The uneducated man never knows exactly what his experience means, and proceeds by guess in the administration of his affairs, with great waste of energy and of substance and with a high percentage of failure.

We come then to the more definite criticism of the mathematical material of the secondary program.

*Differentiated courses needed to provide opportunities to use mathematics as a tool.*—In the first place, the traditional round of algebra, geometrical logic, advanced algebra, and trigonometry ought to be entirely abandoned and a fresh start made. The new work should relate itself directly to the specific needs of each of the new curricula, or of the new differentiated types of high school. That is to say, entirely different sets of mathematics material should be organized for domestic arts, for agriculture, for mechanic arts, for commerce, and for other new curricula or schools as they may be organized. Of these, by way of anticipation, it may be said that commerce and mechanic arts offer by far the best prospect for extended mathematical development. And let it be remembered that the essential justification for this step, from the mathematics standpoint, is that mathematics may have the chance to function as fast as it is learned. In each of these several schools, mathematical processes should be taught only as fast as they are needed,



but the need should be sought out and brought forward as well for the sake of the intellectual value of the subject under instruction as for the sake of the pedagogy of mathematics.

Throughout the program, the mathematics should probably be taught by the specialists in charge of the several specific subjects of the curriculum. In mechanic arts, for instance, the instructor who sets a project involving gear cutting should realize that the mathematics of the situation is as vital a part of his problem as is the mounting of the work on the machine.

To take up each curriculum in turn.

*Only arithmetic and mechanical drawing needed in domestic arts.*—In domestic arts, mathematics is needed to a greater or less extent in dressmaking, in the study of house construction and of the apparatus of the household, in household accounts and other economic courses, and in the study of food values. But the mathematics needed nowhere reaches beyond the elementary principles of arithmetic and a moderate amount of mechanical drawing. If algebra, geometry, and the higher mathematics are taught in addition, of what use are they? What justification of the energy and time consumed? Doubtless some of the girls will be able at the end to manipulate the concepts acquired more or less efficiently, but will such concepts interpret to them one iota which they do not understand equally well without?

*Geometry, trigonometry, and some algebra in agricultural courses.*—In the agricultural courses, boys will have to deal with materials and with facts which must be measured and recorded, and their measurements and records will at times become complicated beyond interpretation in simple arithmetical terms. In the measurement of their fields, in the laying-out of their highways and drains, in analyzing the strength of the different members of their buildings, in determining the profit of their different fields and domestic animals, they will need mathematics as a "tool" to enable them to read the situations presented to their intelligences. Then, what mathematics? Chiefly geometry and trigonometry and the art of making simple mathematical records and analyses; and out of these grows the need of some algebra.

*Geometry taught constructively.*—The geometry which the educated farmer needs is the "earth measurer," not a system of logic. He needs an understanding and knowledge of the properties of plane and perhaps solid figures learned in exactly the same manner in which he learns the



properties of soil in his soil physics. In the latter subject his instructor does not give him a limited number of axioms and devote the year to deducing the science from these primordial concepts. The geometry which is a study by constructive process with pencil and compass, with square and dividers, of the essential underlying principles of the science, is the geometry which will function and read out to the pupil the truths of which he feels the need. There is doubtless a philosophical beauty in realizing the awful necessity of geometrical truths, but our pupil may, if he be of philosophical turn, read logical geometry in the leisure moments of after-life along with his favorite theological speculations and accounts of the recent discoveries in Mars.

*Trigonometry.*—He will find a frequent use for trigonometry if he is to rise to the level of a truly educated farmer. He will use it later and he will use it now in acquiring the concepts of his schooldays. And trigonometry means both geometry and algebra. Geometry in the agricultural curriculum we have already discussed. The algebra needed, that is, the algebra which will function in this curriculum, centers around the equation.

The practical use of logarithms, not the theory, should probably be taught where they are first used, that is to say in the trigonometry course.

*Master use of the equation and subordinate processes.*—Now to acquire facility in the use of the equation means a very considerable amount of practice, but such practice should of course consist in throwing into the form of equations statements which it is desirable to have in such form, and not in the solution of puzzles in the form of “problems” totally unrelated to experience. The competent use of the equation of course implies facility in the use of a limited number of other algebraic processes, to wit: the elementary concepts of algebra, the four fundamental processes with the shorter forms of multiplication and division, the simpler cases of factoring, the extraction of the square root (but not the cube), and probably an acquaintance with the essential principles of expressions in radical form. This of course means the elimination for this curriculum of the following commonly found in texts in use in high-school courses: (1) all extended operations in complicated form such as are still found in exercise books; (2) the long processes for H.C.F. and L.C.M.; (3) all of factoring except the most common cases; (4) all of algebra as commonly treated beyond the quadratic. As before stated,

practice in putting statements in the form of the equation would be substituted for the usual exercises in the solution of problems. On the other hand, the principle implies, here as in the commercial and mechanic arts curricula, a much higher pedagogic efficiency than is often found in high schools in point of drill. That is to say, the laws of the acquisition of skill must be studied and applied to the development of what O'Shea calls automatic facility in execution. That is to say, if the pupil is to make himself master of the needed algebra for use as a language he must have acquired such facility in the use of the equation and the subordinate processes as to be able to use them naturally, and largely without thinking. For this purpose, there are numerous effective devices which will no doubt suggest themselves to the accomplished teacher.

*At what age should algebra and geometry be begun?*—The question suggests itself, at what point in the secondary period should the mathematics of this curriculum appear? This depends, I think, upon two considerations: first, the characteristics of behavior in the pupil at different stages in his development, and, second, the opportunity offered by curriculum or program exigencies for the learning acquired to function. Now, certain phases of the mathematics to be acquired depend mainly upon the openness of the child's mind to the assimilation of new ideas, while others depend upon his fitness to acquire skill effectively and economically. Geometry is an illustration of the former; algebra, in the main, of the latter.

*Constructive geometry at about twelve; facility in algebra at about sixteen.*—There is probably little or nothing in the way of introducing the type of geometrical study which I have described at any time after about the twelfth year, but the earlier the better. In the case of algebra, the unsettled state of the pupil beginning with about the age of twelve, culminating at perhaps the age of fifteen and fading into relatively settled conditions from that time on, makes attempts to develop facility in execution very unpromising before, let us say, about the age of sixteen. Indeed, it would be entirely practicable to put most of the algebra back into the years between nine and twelve when conditions are much more favorable to the development of skill, were it not for the fact that there is no opportunity in those years for the algebra to function.

Trigonometry enters at an entirely suitable period as now at about the age of seventeen or say in the eleventh or twelfth grade.

*Provide constant practice in the mathematics of records.*—In the agricultural curriculum, and to a much greater extent in the commerce curriculum, is the opportunity and need of what may perhaps be called the mathematics of records. As pointed out before a characteristic difference between the educated and the uneducated man is the extent to which the former reduces his experiences to mathematical form, and reads their meaning in mathematical terms. Concretely, of course, we have here the courses in bookkeeping, though what is meant is very much broader than mere keeping of financial accounts. Such mathematics in this curriculum should probably be a constant practice in all courses rather than a distinct course by itself. The pupil should certainly be familiarized from the beginning of the secondary period with the practice of graphic expression and the reading of graphs.

*Commercial curriculum presents special problems and opportunities in securing educative content.*—The commercial curriculum which is chronologically the oldest of our modern importations of the practical arts or vocations into the program of the secondary school is still probably the least developed. For some reason it has not been easy to organize an educational content for commerce equivalent to those of the other curricula. Nevertheless, commerce offers an almost unlimited field for educational exploitation. Perhaps the statement may be ventured that from the educational viewpoint the mathematics of the commercial curriculum is mainly a matter of understanding and recording commercial transactions and interpreting their remoter consequences.

A curriculum in commerce definitely and seriously organized for any purpose more worthy than as a temporary abiding-place for pupils of small ability will certainly offer broad scope for much mathematics—for more of the higher mathematics as now taught probably than any of the other curricula. This becomes at once evident when we contemplate what is involved in the rational interpretation of statistics, in the records of complicated transactions, in the understanding of banking, currency, and kindred questions which must of necessity be matters of daily experience to every really educated business man—not merely the occasional financier, but every small trader as well who would conduct his business intelligently.

*Special aspects of commercial mathematics.*—The mathematics demanded by the situation and teachable in the secondary school appear to the writer to be at least the following: (1) the science of accounts;

(2) the principles of statistics; (3) the properties of number as set forth in the higher arithmetic and algebra.

*Science of accounts.*—The first of these we already have, in germ at least, in the high-school courses in bookkeeping, not nearly adequate for the purpose no doubt but still far from ridiculous. Indeed, bookkeeping in the hands of a competent teacher even now satisfies more of the requirements of the educative process than most high-school courses. It should be revised wherever necessary to make of it an efficient instrument for the recording of modern business transactions, and studied more as a body of principles than it now is.

*Principles of statistics.*—Of the second, little can be said except to urge upon the statisticians the importance and the opportunity of making their science a part of the general fund of learning. The helplessness of the average educated individual in the presence of a simple story told in statistical form must be a matter of common observation. The business man must read a very considerable part of his literature in statistical form.

*Higher arithmetic and algebra of business processes.*—To mention subjects like insurance, returns on investments, annuities, and similar considerations is to justify the need of the third kind of mathematics mentioned above, namely, the higher arithmetic and algebra or the study of the properties of number as such. Today the business man refers all such matters to the specialist, and his mental attitude toward them is the same as that of the average housekeeper to the plumbing of her home; and that is but one stage above the attitude of the savage in the presence of a thunderstorm. In other words, while the business man or the housekeeper may be an educated man or woman, neither he nor she is capable of an educated attitude toward work, unless work is fully understood.

*Mathematics in the curriculum in mechanic arts.*—All that has been said above is applicable in principle to the curriculum in mechanic arts or to the mathematics of the mechanic arts or manual-training high school. And the same may be said of any other industrial material which is capable of educational exploitation. In general, in any such curriculum, the extent of mathematics desirable or even possible will be closely related to the extent to which the subject-matter of the curriculum is susceptible of mathematical interpretation and expression.

One final study is perhaps here worth while, to wit: a brief survey

of the mathematics indicated for courses in the mechanic arts, for this curriculum certainly offers the broadest scope for mathematics teaching, though in the mind of the present writer commerce promises distinctly the greater intensiveness.

The mechanic arts curriculum ordinarily embraces: woodworking of a somewhat advanced type; forging; pattern-making; molding and casting; and general machine-shop practice with the engine lathe, drill press, bed planer, and milling machine. To these must be added mechanical drawing of a more advanced type than that found elsewhere. There should also be added courses less commonly found, namely, the elements of engineering as applied to the construction and management of steam, hot air, and various types of gas engines, and electrical machines and appliances.

*Geometry, plane trigonometry, analytic geometry, and calculus.*—Now the underlying mathematics which will interpret the subject-matter of this curriculum and which will function pedagogically during the teaching process and which is probably assimilable during the secondary period is the following: (1) geometry, plane, solid, and descriptive; (2) the elements of plane trigonometry; (3) the elements of analytic geometry and calculus. Of course as mathematical tools there must also be the modicum of algebra which is really needed for reading purposes; and acquaintance with the manipulation of such devices as the slide rule and logarithmic and other tables, but not necessarily any great facility in the use of these appliances.

*Bring in as applied mathematics where needed.*—The processes taught must be applied mathematics brought into the program at the point where it will be used and taught as a body of principles directed to a known and felt need and not as a logical system. The order of introduction should probably be: geometry and a great deal of it, then the necessary algebra, and finally so much of the higher mathematics as will suffice.

To a very considerable extent the educational level of the mechanic arts course will probably depend upon the degree to which the school succeeds in bringing mathematics to bear upon the study of the various operations involved, especially in the machine shop in the later courses of the curriculum.

A gas engine of excellent design and creditable workmanship and of effective accomplishment under working conditions may be and

frequently is produced. So far the pupil who constructed the mechanism has undoubtedly been developed, but his development has not reached the plane of genuine education unless his attitude toward his work and his product is different from that of the intelligent craftsman. He has been educated if he has thought out the process from step to step and hence understands his engine. But to understand that machine he must have been able to work out its construction and predict its behavior in mathematical terms and with mathematical exactness.

To use another illustration. A pupil can with the aid of certain tables, formulae, and similar devices work out and construct a cam which will actuate a certain device at a given point in its revolution. So far he is doing creditable work as a mechanic. But he is on the way to become an educated mechanic only when he has analyzed the situation mathematically without the aid of tables and formulae. When he has thus been enabled to really think out his work, he at once rises to an entirely new intellectual level.

*Reconstructed mathematics will save time and increase teaching efficiency.*—Of course all the foregoing involves administrative and pedagogical problems of a serious nature, but the problems once faced will be found far from insuperable. It is beyond the scope of this paper to enter either the administrative or the pedagogical field. Suffice it to say that when the problem is approached from the standpoint of analysis of the situation in a scientific spirit, much as has been the case with the scientific management people in the field of industry, a wonderful saving of time and a most fortunate enhancing of teaching efficiency is usually the result.

#### SUMMARY

The conclusions of this paper may be summarized in the following terms.

1. The traditional round of mathematics in the high school, to wit: elementary algebra, plane and solid geometry, trigonometry, and advanced algebra, must be revised both as to organization and content, and adapted to the known nature of the adolescent and to the social purpose of the high school as that purpose is increasingly revealed by modern conditions.

2. Mathematics must be treated primarily as a language, the purpose of which is the interpretation of the various sciences.

3. Courses in mathematics must be arranged at such points in the curriculum as will give immediate opportunity for functioning.

4. The several integral parts of the program such as the household arts, etc., must each have its own specially organized mathematics; and the mathematics of each curriculum should probably be in charge of the specialists of that curriculum rather than in the hands of a separate mathematics faculty.

# **SUPERVISED STUDY AS A MEANS OF PROVIDING SUPPLEMENTARY INDIVIDUAL INSTRUCTION**

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## ***Main points of the paper.—***

1. In recent years the necessity of providing individual instruction to supplement class instruction has been emphasized. Another movement toward greater efficiency of our schools is the growing demand for giving pupils assistance while they are studying and training them in habits of study.

2. To attain both of these ends various plans have been proposed and tried out, one of the best being the provision of organized periods of study, for the purpose of supervising individual pupils who are studying silently.

3. This situation has developed historically according to the following stages:

a) Until the second quarter of the nineteenth century the dominant method of instruction used was the recitation by each pupil to the teacher at the latter's desk, of memorized lessons, often not understood by the pupils.

b) During the nineteenth century, group or class recitations replaced individual recitations in nearly all city schools.

c) Toward the end of the nineteenth century, the necessity of providing variations in instruction was urged in order to adapt instruction to the capacities of individuals.

d) The importance of this point is strengthened by the results of statistical investigations which show that in an ordinarily well-graded class the brightest pupil can do four or five times as much work as the slowest and often twice as much as the average pupil can do in the same time.

e) Home environment is a factor in the formation of study habits. Its influence may be either for good or for bad. The time spent by many pupils in home study is done under such unfavorable conditions as to form bad intellectual and moral habits and to waste an enormous amount of time.

4. During the last twenty-five years, experiments have been organized to provide for individual differences during class instruction. They include the following more important schemes, each having its advantages and disadvantages:

a) The abolition of all class recitation and home study and the substitution of supervised study. This is known as the Pueblo plan.



b) The organization of prescribed supervised study to supplement class instruction; known as the Batavia scheme. It has been tried in high schools in various forms.

5. The experiments which supplement class recitations in the high school with supervised study include the following types:

a) Supervision in the assembly room during the regular high-school study periods by the teacher in charge (Reavis' study program cards).

b) Attendance required of pupils who are falling behind during supplementary supervised study period (Detroit and University of Chicago High School).

c) Voluntary study hours in each department for pupils needing assistance, supervised by departmental teachers (Pittsburgh, De Kalb, and University of Chicago High School).

d) Use of double or divided periods, one part for supervised study, and one part for class recitation (Joliet, Illinois, and University High School, University of Missouri).

6. The general testimony concerning the efficiency of supervised study in improving the work of pupils is strongly favorable. That of Superintendent Hughes of Sacramento is an example from one of the largest systems which has abolished home study.

7. Exact measurements are needed before final conclusions can be reached. Three examples are furnished of measured superiority secured by supervised study in mathematics and history (University of Chicago High School, and the high schools of Bloomington and Oakland City, Indiana; Mr. Rickard's technique for conducting experiments).

8. A special technique for supervising study must be developed. This is easily done for mathematics, but not for many other subjects.

9. Until the high-school school day is prolonged to seven hours, it will probably be advisable to provide for some home study, especially for the brighter students.

#### *Introduction.—*

One of the most pressing problems before the educational public at the present time is to find a means of eliminating the enormous waste of the time of pupils that results from two conditions which prevail in the schools, namely, the failure to provide for the individual differences in capacity found among pupils in the same class, and failure to organize the studying done by pupils so as to avoid the futile efforts which they now put forth to master lessons assigned for home work. One of the most important factors in solving both parts of this problem is the organization of periods for supervised study during school hours. The

chief purpose of this paper is to describe and evaluate the recent experimentation along this line. A brief discussion of the historical development of the present situation will be presented first as an aid in securing a proper perspective view of the whole problem.

*The first method of instruction was the individual method.—*

It is an interesting fact that the first method of instruction in the earliest schools was entirely individual and not class instruction. An examination of pictures of these schools brings this out very strikingly. They show that pupils were always taught as individuals and not in groups. The teacher remained at his desk and called upon his pupils one at a time to repeat the lesson, giving help or explanation whenever necessary.

How wasteful and unsatisfactory this method was can be understood from the testimony of men who received their education in these schools. Thus, Henry K. Oliver, describing the teaching in the Boston reading schools in 1800, says, "I received about twenty minutes of instruction each half-day, and as school was kept three hundred and sixty minutes daily, I had the privilege of forty minutes' worth of teaching and three hundred and twenty minutes' worth of sitting still, if I could, which I could not, playing, whispering, and generally wasting time, though occasionally a picture book relieved the dreary monotony."<sup>1</sup>

Peter Parley, born in 1793, who was educated in a rural school in Connecticut, describes the method as follows: "The children were called up one by one. . . . She [the teacher] then placed the spelling book before the pupil and with a penknife pointed, one by one, to the letters of the alphabet, saying, 'What's that?' "<sup>2</sup>

Even as late as 1855, Grimshaw, writing in *Barnard's Journal*, deplored the time wasted by the old-fashioned and false method of teaching individuals instead of classes. "I notice," he says, "in my visits to the schools, many pupils sitting idle; sometimes part of the school is asleep, or what is worse, making a noise and disturbing the remainder who desire to be industrious."<sup>3</sup>

Thus it is seen that in the early schools individual instruction was the common method used, although to some of the educators its waste-

<sup>1</sup> Parker, *History of Modern Elementary Education*, p. 83.

<sup>2</sup> *Ibid.*, p. 85.

<sup>3</sup> Holmes, *School Organization and the Individual Child*, p. 13.

fulness was apparent. The simultaneous or class method was adopted very slowly. "The individual method by which the master called his pupils to the desk one by one to recite their lessons and to receive explanations lingered late even in the heart of Prussia and in France it was in vogue as late as 1843 in 5,488 primary schools. In Scotland it held sway in some of the leading schools until well into the last quarter of the nineteenth century."<sup>1</sup>

*Exceptional examples of the early use of class instruction.—*

The method of grouping pupils into classes for simultaneous teaching under one instructor was described at length by Comenius (1592-1671) in his *Great Didactic*, published in Latin in 1657. In this book he gave a systematic presentation of his principles and methods. In the separate classes of his school he wants certain books introduced: "Out of these the teacher will read and reread the lesson for the hour, everyone listening to him. If anybody needs an explanation, he will explain it so clearly that it be impossible that they could fail to comprehend it. Then pupil after pupil rereads the lesson clearly and plainly, the others looking into their books and reading silently."<sup>2</sup>

It is probable that other reformers besides Comenius advocated and used the method of simultaneous instruction, but credit for its practical application on a large scale is due to the Frenchman, Jean Baptiste de la Salle (1651-1719). He organized the schools of the Christian Brethren, an association of Catholic laymen who were pledged to devote themselves to the instruction of the poor children. They used the class method of instruction.

The application of his method of class instruction is described in the *Conduct of the Christian Schools* as follows: "While one reads, all the other children in the class follow the words in their books. The master must watch carefully to see that all read to themselves what one is reading aloud, and from time to time, he must call upon some of them to read a few words that he may take them by surprise and make sure that they are really following the reading."<sup>3</sup>

The schools of the Christian Brethren who used this method of class instruction were without doubt the most effective elementary schools in existence before the French revolution (1789). However, in general

<sup>1</sup> Holmes, p. 12; Landon, *School Management*, p. 119.

<sup>2</sup> *Did. M.*, XXIX, 17, III.

<sup>3</sup> Parker, *op. cit.*, p. 100.

France seems to have clung much longer to the individual method of instruction than her neighbors.<sup>1</sup>

In England the individual method was replaced by the monitorial systems of elementary schools. This was due largely to the efforts of two men, Andrew Bell (1753-1832) and Joseph Lancaster (1778-1838). The monitorial system is a method of dividing the children of a school into groups which are taught by the more advanced and competent pupils. The method had been used by some educators before the time of Bell and Lancaster, but these two educators deserve the credit for perfecting it and for putting it into practice on a large scale. Lancaster had in his school in the Borough Road 1,000 boys. "For several hundred children there was but one master but he had for his assistants a picked company of the elder boys who looked up to him with reverence and rejoiced to carry out his plans. . . . Joseph Lancaster had the skill which gains the loyalty of subordinates, and he knew how to inspire his monitors with fondness for their work and with pride in the institution of which they formed a part."<sup>2</sup>

A defect of this system was the tendency to spend too much effort upon class organization and to overlook the individual. However, it brought about a radical improvement in the methods of school management.

*During the nineteenth century the individual method was replaced by the class method.—*

Being not only superior to the common methods of instruction in its effectiveness, but being also a very economical system, the monitorial form of the class method was adopted in the United States in 1806 by the Free School Society of New York City, and was used in other large cities during the first quarter of the nineteenth century.

The introduction of a system of instruction by which all pupils of a group are taught at the same time made it necessary to group children so as to make each group as nearly as possible uniform in ability so that the instruction would be best suited to their needs. A good classification made it possible to create for the child the best possible conditions for successful school work. This led to the "Graded System," or "Class-room System," the system of grouping together a number of children for

<sup>1</sup> Landon, p. 119.

<sup>2</sup> Fitch, *Educational Aims and Methods*, p. 334.

the purpose of instruction, the instruction being given to them as a group and by a trained teacher.

Dr. William T. Harris who deserves much credit for perfecting this plan says in a paper on "The Early Withdrawal of Pupils from School" (1872) with reference to the ungraded school: "The unclassified school has disappeared from our cities and large villages but still exists in the country districts very generally. Whenever the sizes of the schools have been such as to admit it, a system of classification has been introduced, and the immediate consequences have been (a) a great increase in the length of recitation; (b) far more thoroughness in the discussion of the lesson, sifting the different statements and probing the measuring of the same; (c) great stimulation of the mental activity of the pupil through trial and competition with other members of the class. These three advantages can scarcely be overestimated. They multiply the teacher's power just as organization improves the strength of the army."<sup>1</sup>

*Toward the end of the nineteenth century educators criticized the class method.—*

However, the defects of the graded system had become apparent and were keenly felt by Dr. Harris, as he says in the same paper: "It is this very system that is so organized as to prove the very greatest of all causes for the early withdrawal from school. . . . The tendency of all classification is to unite pupils of widely different attainments. The consequence is that a lesson is too short for some and too long for others. The best pupils in the class are not tried to the extent of their ability. . . . The poorest pupils of the class are strained to the utmost. They are dragged, as it were, over the ground without having time to digest it as they should. This develops the result that the overworked pupils are frequently discouraged and drop out of the class, and likely enough out of the school altogether."

Two years later (1874) E. E. White in a paper on "Problems in Graded School Management" criticized the graded system because of its serious defects: "If the teacher of a class adapt this instruction and requirements to the maximum capacity of his pupils, the great majority are hurried over their studies, and receive a superficial and imperfect training. If he adapts his class work to the minimum capacity of the class, the great majority are held back, and as a consequence, not only

<sup>1</sup> *Proceedings N.E.A.*, 1872, p. 266.

sacrifice time and opportunity, but fall into careless and indolent habits of study."<sup>1</sup>

*The importance of providing for individual differences becomes clear in view of statistical proof.—*

It is generally recognized that many children are not as able to succeed in their school work as the larger part of their class. Apparently, mass instruction under which abler children make normal progress is not efficient for backward children, for the principle that a subject is taught in the same way and to the same extent to every pupil fails to make allowance for the wide range of individual differences. Few persons, teachers included, know how great a variation in ability is found among pupils of the same class. Frederick G. Bonser<sup>2</sup> tested 757 children, 385 boys and 372 girls of the upper division of the fourth grade and of the fifth and sixth grades of public schools Nos. 2, 3, 4, 6, and 9, of Passaic, New Jersey. The tests employed were made up of a series of problems and questions designed to exercise the most fundamental four phases of reasoning activity, namely, the mathematical judgment, controlled association, selective judgment, and that complex of analytic and synthetic thinking used in the intellectual interpretation of literature. Table I gives the combined results of all of Bonser's tests. The table shows great variability within the various grades.

In grade 4 A the ability varies from 20 to 245 units.

"	"	5 B	"	"	"	"	35	"	255	"
"	"	5 A	"	"	"	"	50	"	265	"
"	"	6 B	"	"	"	"	70	"	265	"
"	"	6 A	"	"	"	"	80	"	260	"

It is interesting to notice that a large number of 4 A pupils can do more than some of the pupils in the other grades.

Similar statistics are given by Thorndike.<sup>3</sup> In a test in addition given to 83 seventh-grade pupils, all pupils being allowed the same time, they did from 3 to 20 examples correctly.

The abilities of the fourth-grade girls in thinking of the opposites of words vary from 9 to 24; of fourth-grade boys in spelling from 20 to 99; of sixth-grade girls in observing misspelled words from 10 to 94; of

<sup>1</sup> *Proceedings N.E.A.*, 1874, pp. 266, 267.

<sup>2</sup> *The Reasoning Ability of Children of the Fourth, Fifth, and Sixth School Grades.*

<sup>3</sup> Thorndike, *Principles of Teaching*, chap. vi.

TABLE I  
FREQUENCY OF ABILITIES BY GRADES

ABILITY		GRADE 4 A		GRADE 5 B		GRADE 5 A		GRADE 6 B		GRADE 6 A	
		B	G	B	G	B	G	B	G	B	G
20 to	25.....		I								
25 "	30.....	2									
30 "	35.....	2	I								
35 "	40.....	3	I		I						
40 "	45.....	I	2								
45 "	50.....	2	I								
50 "	55.....		3	I		I					
55 "	60.....			I		I	I				
60 "	65.....	3		I			I				
65 "	70.....	4	I				I				
70 "	75.....	3	I		I	2			I		
75 "	80.....	3	I	I	I	I		I			
80 "	85.....	3			I						I
85 "	90.....	4	3	I	I						
90 "	95.....	5	2	I	I	2	2		I		I
95 "	100.....	3	5		I	2	I				
100 "	105.....	I	7		I	2					
105 "	110.....	5	2	3	I	3					
110 "	115.....	2	2	3	2		I	I			I
115 "	120.....	I	7	6	6	2	2	4			I
120 "	125.....	4	3	4	3	I	5	I			I
125 "	130.....	4	I	3	4	I	2	I	I		
130 "	135.....	3	5	3	8	5	2	I			
135 "	140.....	5	7	3	7			5	2		
140 "	145.....	4	9	2	4	2	5	2	I		I
145 "	150.....	4	3	I	4		I	2	3	I	I
150 "	155.....	2	3	5	6	6	I	4	I	2	I
155 "	160.....	3	4	4	3	I	2	2	5	I	I
160 "	165.....	I	5	4	3	4	2	2	2	I	
165 "	170.....	I	I	2	5	4	3	8	5	3	I
170 "	175.....	2	I	4	2	4	3	3	3	3	4
175 "	180.....	I	2	3	3	3	3	6	4	4	
180 "	185.....	I	I	4	3	I	2	4	7	3	3
185 "	190.....	I	I	I	4	2	3	5	5	I	3
190 "	195.....	I		3	3	2	2	4	3		2
195 "	200.....	2		4	2	5	2	6	6	3	3
200 "	205.....					3		4	4	3	5
205 "	210.....	2	I	3	2	I	5	7	4	I	2
210 "	215.....			3	2	2	2	5	5	3	5
215 "	220.....	2		I	I		I	2	4	2	3
220 "	225.....	I		I		I	I	I	3	I	6
225 "	230.....			I				3	2	4	2
230 "	235.....		I	I	I			2	3	4	I
235 "	240.....	I				I		I	3	2	7
240 "	245.....	I						2	I	4	
245 "	250.....							4		I	I
250 "	255.....			I				2		2	2
255 "	260.....							2	I	I	
260 "	265.....						2	I			

"Grade A" means upper; "Grade B" means lower.  
The columns headed "B" and "G" represent "Boys" and "Girls" respectively.



eleven-year-old girls in addition from 5 to 44; of ten-year-old girls in rapidity of movement from 6 to 41 (number of crosses made in a fixed time); of twelve-year-old boys in observing letters from 28 to 71.

"The range of ability in school children of the same age (defectives not included)," says Thorndike, "is such that in a majority of capacities the most gifted child will in comparison with the least gifted child of the same age do over six times as much in the same time, or do the same amount with less than a sixth as many errors. The teacher of a class, even in a school graded as closely as is possible in large cities where two classes are provided in each building for each grade and where promotion occurs every six months, will find in the case of any kind of work some pupils who can do from two to five times as much in the same time or do the same amount from two to five times as well as some other pupil."

Mr. Search gives the following statistics on individual differences.<sup>1</sup> Members of Holyoke, Massachusetts, grammar school class of 24 pupils representing an ordinary well-graded class accomplished, in the same time, pieces of work in arithmetic varying from 140 to 479. In the Central High School of Pueblo, Colorado, pupils representing an average class in a graded school covered from forty to one hundred chapters in Caesar in the same amount of time when each pupil was permitted to advance at his own rate. In the Field High School of Leominster, Massachusetts, a senior class in review geometry showed a working ability ranging from 40 to 168 units of work.

In view of the fact of these individual differences, it becomes evident that the principle that a subject is to be taught in the same way and to the same extent to every pupil applies neither to the slow nor to the bright pupils. The bright pupil commonly has to be idle half of his time. The slow pupil is being hurried constantly. Not only does he fail to get clear understanding, meeting difficulties for which he is not prepared, but often because he needs more time than his classmates, he is being looked down upon by them. It is not surprising that he becomes discouraged, and failing in his work, drops out of school. Inability to understand the work and difficulties within the course are among the chief causes of failures. With some encouragement and individual attention, many pupils would be saved from failing. The large number

<sup>1</sup> P. W. Search, *An Ideal School*.



of failures in our high schools demands serious consideration on the part of every teacher.

C. R. Rands and H. B. Kingsbury<sup>1</sup> found recently that, in 46 high schools with an enrolment of 33,276 pupils studying English, only 81.44 per cent passed. In the same schools only 75.25 per cent of 24,404 pupils studying mathematics were able to receive credit.

A committee of the Chicago High School Teachers Club reports the statistics of failures in the Chicago high schools, as given in Table II.<sup>2</sup>

TABLE II

	No. of Pupils		No. Failed		PERCENTAGE FAILED		AVERAGE PER CENT	PERCENTAGE FAILED IN	
	Boys	Girls	Boys	Girls	Boys	Girls		Eng.	Math.
First year.....	279	375	176	135	49	40	44.0	14.6	26.0
Second year.....	212	343	63	100	29.7	29.1	29.4	.....	.....
Third year.....	256	363	59	75	23.	20.7	21.7	.....	.....
Fourth year.....	224	313	44	32	19.6	10.2	14.1	.....	.....

The reasons for failure given by the pupils themselves are significant. One-tenth or more of the pupils who failed stated as the cause that the work was too hard, one-tenth say they were absent too much. One-fourth of those who failed in algebra said that they did not understand the work, and 50 per cent of the failing pupils in geometry said that they did not like the study.

Dr. Otis W. Caldwell reports the following statistics. Of 432 pupils who entered the Freshman class of one of our large high schools in the autumn of 1909, only 94 remained after the third semester, the other 338 having left school without completing the third semester. Of these 338 pupils, 124 made no passing grade in the school, 121 passed in only 57 per cent of the subjects which they took, and 93 passed in 78 per cent of their subjects making grades averaging above 80 per cent, the passing grade being 75 per cent. The 94 pupils who remained in school received credit in slightly more than 95 per cent of their subjects. "It seems possible that this case is more striking than would usually appear from such investigations since the problems associated with this particular

<sup>1</sup> *School Review*, November, 1913.

<sup>2</sup> *Educational Bi-monthly*, October, 1913.

school may be peculiarly difficult. In a careful study made by Mr. G. R. Johnson, of St. Louis, and covering records from twelve high schools with a total number of 18,926 pupils, he finds that approximately 90 per cent of those pupils who were failing in their work left school, while but 10 per cent of those who were making 90 per cent or better in their work left school. This percentage of those who failed and left school remains almost constant throughout the four years, with the exception that in the Chicago and Kansas City schools rather a larger percentage of the failures drop out in the earlier years than in the later years, while in the smaller schools the percentage of dropping out of those who fail remains about the same throughout the whole high-school course."<sup>1</sup>

*Reaction against home study and class recitation.—*

It is well known to parents and teachers that a very large percentage of children of our schools do not know how to study properly and profitably. When pupils are told by the teacher to study, they seem to do everything but the right thing with the result that much energy is dissipated and a great waste of time and effort is incurred.

Many teachers and parents depend upon assigned home work to develop the ability to study. It is argued that there is great value to the student in his unaided attempt to surmount difficulties; that he is gradually becoming independent by learning to read his books alone; that in the brooding of the pupil over the solution of a problem or some other assigned work the development of will power is realized; that it gives him an opportunity for quiet thinking which he cannot find in the classroom; that home work develops a habit of neatness not obtainable during the rapid progress of class work; that it is of greatest importance that the pupil should get further drill and review of the work done in the classroom; etc. In all of these arguments the great value that is claimed for home work is found in the ethical effect of being held responsible for a definite piece of work to be carried out independently and in the fundamental demand that the pupil must master it without help, using only his textbook and class notes.

There are also many teachers and parents who deny practically all of what has been mentioned in favor of home work. They claim that the notion that there is some value to the student in his unaided effort

<sup>1</sup> Dr. Otis W. Caldwell, "The Laboratory Method and High-School Efficiency," *Popular Science Monthly*, March, 1913.

to surmount difficulties is mistaken; that the effect of home study upon school progress is overestimated; that hasty and unmethodical use of books at home takes all the attractiveness out of them; that it means needless waste of undirected effort which might be replaced by much admirable and effective work; that it does not train, but weakens the pupil, since there is no more discouraging and nerve-destroying task than to be obliged daily to do mental work that has no meaning; that either pupils are being trained to evade duties and to use dishonest means of getting possession of the required work, or the mass of required work leads to cramming and mechanical memorizing and thus bars all spontaneous thought and activity, so that when the pupil gets through, he does not know much of anything.

Whatever may be the right view regarding home work, it is a fact that the great majority of the teaching public follows tradition rather than try new theories which in the end might be more advantageous. Therefore lessons are assigned regularly and most conscientiously, and since one of the great fears of a teacher is that of being unable to complete the requirements of the course within the limit of time, lessons covering advanced work are assigned only too often. It is very easy for the teacher to say to his class: "Study the next four pages for tomorrow; you will find some difficulties, but you are only expected to try seriously to overcome them." But the conscientious pupil will sit up late into the night neglecting his other work, spending hours fruitlessly because of his wrong viewpoint, being expected to do what was the proper function of the teacher to carry out. So it happens the *preparation* for the class work, not the class work itself, burdens the lives of the pupils.

An incident illustrating this fact is given in the *Ladies Home Journal* for January, 1913: A widow came to the superintendent of schools with the following complaint: "I have four little girls attending your schools. I am up at five o'clock in the morning to get them off to school and to get myself off to work. It is six o'clock in the evening when I reach home again, pretty well worn out, and after we have had dinner and have tidied up the house a bit it is eight o'clock. Then, tired as I am, I sit down and teach the little girls the lessons your teachers will hear them say over on the following day. Now, if it is all the same to you, it would be a great help and favor to me if you will have your teachers teach the lessons during the day, and then all I would have to do at night would be to hear them say them over."

# THE THIRTEENTH YEARBOOK

That very few pupils have a clear knowledge of what is required in order to study and make their own a lesson as it is ordinarily assigned by the teacher is seen from the following experiment: Dr. Lida B. Farhart assigned to 812 sixth- and seventh-grade pupils a short section from a textbook in geography with the following instruction: "Here is a lesson from a book such as you use in class. Do whatever you think you ought to do in studying this lesson thoroughly and then tell (write down) the different things you have done in studying it. Do not write anything else."

In a latest ~~experiment~~ in which children were asked to find the subject assigned ~~to them~~ ~~of 325~~ ~~of 325~~ were able to discover the most important part of the ~~lesson~~ ~~text~~. Yet determining the subject and the leading facts are among the ~~most important~~ ~~most important~~ topics needed for successful study of a lesson. ~~the~~ ~~the~~ the greatest care on the part of the teacher in assign-

The better teachers give careful suggestions with a  
 clear idea of exact aim and meaning of the assignment.  
 The better pupil do the work without  
 the help the slow pupil who fails to make the  
 assignment and the suggestions given by the  
 class of the high school suggestions given

[illegible]

The first of these is the fact that the  
 Government has been unable to secure the  
 necessary funds to carry out its policy.  
 The second is the fact that the Government  
 has been unable to secure the necessary  
 funds to carry out its policy.

the classroom, a pupil, no matter how slow, should not even know that suggestions were given. Asked whether any suggestions for the next day's lesson were given, the girl said she knew of none. To satisfy the parents, the teacher took a quarter of a hour to go over the preparation of the lesson with the parents and daughter exactly as had been done in the classroom. It was found that the girl remembered it all, but failed to see how it would help her to study her lesson. It was now the parent's turn to be surprised. They went away feeling that the child, not the teacher, was at fault. But this experience shows clearly that the teacher's method of instruction did not accomplish the desired results, for at any rate this pupil had failed to make the connection between suggestions and assignment.

To ascertain to what extent the other members of the class might have this difficulty, the following experiment was tried. In assigning the next lesson, suggestions were given with unusual care. The pupils were then told that the next fifteen minutes would be given to studying the lesson, and that they should begin the assigned home work immediately. The experiment showed at once that the pupils did not appreciate the value of limited time, for all were slow in beginning work. It took some of them the whole fifteen minutes to go through the technique of getting started. Several evidently were not in the habit of working alone, for they looked about helplessly and simply imitated the others. However, these same pupils had come to the classroom daily with the lessons well prepared. Very little was accomplished in the fifteen minutes, indicating that the pupils very probably wasted much time in studying their assignments of home work. Although the class had been in the high school only a short time, the teacher had been presupposing a habit of study which did not exist. Much of the difficulty is due to lack of knowledge as to how to study and how to use time to advantage. The remedy in this case is, of course, definite instruction as to methods of study.

In the high schools one often hears a teacher require a class to study given lesson, but seldom does one find a teacher much concerned about the method employed in satisfying this demand.

The need of teaching high-school pupils how to study becomes even more apparent when one considers the difference between the methods of the elementary and high school. Dr. Caldwell calls attention to this difference in his article in the *Popular Science Monthly*.

In the elementary schools from which these pupils have come to the high school, the school day runs from 8:30 or 9:00 to 3:30 or 4:00 o'clock and the greater part of all study is done during school hours, under direct or indirect supervision of the teacher. The teacher is present to correct any misunderstandings in assignments, to give a directing question or suggestion, or to quicken the endeavor, when such is needed. The work of one year is fairly well connected with that of the preceding years and partially new and partially old ground is covered each year. On the other hand, in the high school, particularly, in the first year, the subjects of study are largely or wholly new, often so new as to constitute fields quite unknown to the pupils. Even when some of the subjects are not new, we have a larger change than occurred between any two elementary grades. Pupils in a given subject go to the special room of the teacher for their recitations, recite, and receive their assignment, and then go to another classroom for another subject, or return to their assembly room or to their homes with their assigned work for the next day. The teacher in the elementary school ordinarily meets the pupils of a given grade for most or all of their work and knows them as they appear in all their work. In high school each teacher is especially interested in one or a few subjects and this one or few are the only ones in which the teacher knows his pupils. In the elementary schools the teacher usually stands as representative of one grade of pupils. In the high school the teacher usually stands as representative of a subject.

The conditions for home study present all the possible variations, but most home study must be done under discursive influences—a little study, a little conversation about irrelevant matter, an intermittent discontinuance for small household duties, a prolonged intermission for recreation, with the half-consciousness of wrong doing because of unfinished and overhanging lessons, even interrupted sleep because of a number of unfinished tasks, a final effort to secure categorically such facts regarding the assignment as are essential to enable the pupil to meet the teacher, a consciousness of incompleteness of preparation and a hope that, if called upon at all, the call may come for the facts that are in the pupil's meager store. Often the pupil's own initiative to home study must be supplemented by commands or entreaties from parents, and sometimes parents must do pupil's work for them, under penalty of family chagrin due to impending failure of the child. In most cases poor habits of study result from purported home study, though some pupils of good ability and strong individuality may do quite effective or superior work through home study. The habit of dawdling, waste of time in getting to work, wondering whether the work really must be done, whether a lexicon, cyclopedia, or parental answer to questions may not be found, leaves an entirely improper attitude toward real study. Sham work, at first as a makeshift, later becomes the only kind of which some individuals are capable.

William C. Reavis made an investigation as to the relation between the habits of study of a pupil and his home surroundings.

The investigation covered the home conditions of three hundred and ninety-three children. Data about these homes were gathered and graded according to the following points. Educational interest on the part of the parents, means to provide adequate food, clothing, medical attention, books, papers, magazines, and entertainment, moral atmosphere that would encourage honesty, earnest effort, regard for the right of others, and a due measure of self-respect. The homes were divided into three equal tertiles and designated as Rank I, II, and III. It was found that 75 per cent of pupils of home environment of Rank I, 32.4 per cent of Rank II, and 15.3 per cent of Rank III have habits of study of the first class; 19.7 per cent of Rank I, 48.2 per cent of Rank II, and 40.7 per cent of Rank III have habits of study of the second class; and 5.3 per cent of Rank I, 19.4 per cent of Rank II, and 44 per cent of Rank III have habits of study of the third class. The investigation shows that there is a marked correlation between the rank of the home environment and the habits of study of the pupil and points out the fact that the possible origin of many of the habits and attitudes of school children is in the home. Table III classifies pupils who do, or do not do, their home work assigned by teachers. It is seen that there is a large percentage of pupils doing home

TABLE III

	Rank I	Rank II	Rank III
Home study . . . . .	38.5 per cent	54.2 per cent	7.3 per cent
No home study . . . . .	4.1 " "	43.8 " "	52.1 " "

study coming from homes of the first and second rank and that there is a large percentage of pupils not doing home study coming from homes of the second and third rank.<sup>1</sup>

Thus, home study cannot be depended upon to develop the pupil's ability to study and it is left to the school to make the pupil able to work efficiently without help and to teach him to use his mind and his books, one of the most important lessons in the preparation for life.

However, the class system commonly in use in our high schools does not develop efficiently this ability. The class period is used partly for assigning home work and partly for recitation purposes. Usually this last part is the more prominent. Its purpose is primarily to determine

<sup>1</sup> Factors That Determine the Habits of Study of Grade Pupils," *Elementary School Teacher*, XII, 71-81.



whether a pupil can give a satisfactory account of the given topic which he was to prepare in his home study. Necessarily the recitation is largely devoted to clearing up difficulties. It gives usually little additional stimulus to pupils who have mastered the lessons and who therefore have little interest in the helpless efforts of their classmates trying to reproduce the assignment.

As a result the recitation as a test of a pupil's home preparation is likely to become monotonous, especially when a slow pupil recites; it encourages lack of attention and divided interest. It fails to rouse pupils to their actual capacity of effort. If, as happens frequently, the whole class period is given to recitation purposes the assigned home work is likely to be on advanced work to be followed the next day by another uninspired reproduction, etc.

This is the class system commonly in use in our high schools. It is wasteful of time and energy, productive of loss of interest, and not efficient in developing ability to study.

*Experiments to provide for individual differences during class period.—*

From the preceding review it is seen that both individual and class instruction fail to get the best results in school work. To go back to the individual method obviously would be a mistake, while under class instruction the variety of human nature is not recognized. It must choose those stimuli which are for the greatest good of the greatest number of those who are most deserving.

While the slow pupil is struggling with unnecessary difficulties, the bright pupil who, in the same time, can do four or five times as much work as the slowest in the class without making one-sixth as many errors is held back and is not profitably employed. He wastes time, may lose ambition, and finally become satisfied with little progress.

Thus mass instruction fails to provide for the very bright and for the very slow. The latter must either receive additional instruction or have provided for them a method which is more efficient for the individual than mass instruction.

Dissatisfied with the uniformity of classroom methods, parents, administrative officers, and teachers in schools of all grades have tried to develop methods which will be more effective for the individual pupils; which will provide for individual differences without losing the great advantage of the uniform method. A number of plans have been advo-



cated as being effective in providing for the varying needs of the pupils due to the differences between the bright and slow.

In the following, some of the more successful plans will be presented:

#### ABOLITION OF ALL RECITATIONS AND HOME STUDY

Perhaps the best known of the plans to provide for individual instruction is the so-called Pueblo plan which became generally known through the publications of Superintendent Search from 1894 to 1901.

##### *The individual, or Pueblo plan.*<sup>1</sup>—

The school day is divided into six one-hour periods. Four and one-half hours are devoted to language, science, mathematics, history, literature, and drawing. Three periods a day are definitely assigned to three literary studies carried on together. The additional one and one-half hour is regarded as extra time to be spent wherever the pupil needs it most, or in some cases according to his individual bent. In the high school a fixed program is followed. In the grades below the high school the work is entirely by flexible programs. The work is conducted largely by what is called the laboratory method, each teacher arranging a plan of work one week in advance. There is no recitation as it is generally conducted in schools. There is a class exercise for the presentation of fundamental principles in beginning a new subject, for the giving of working directions, or for the discussion of general principles applying to all individuals. Promotions are based entirely upon ability to do. There are no marks, no mechanical reward for doing right, no rankings or discriminating honors of any kind.

Various claims are made in favor of this plan by its advocates.

1. Better health: There are no excessive hours of labor. When a student leaves school, he turns the key on his school books and school-room work. His energies find expression through some other channel.

2. Trained, independent, self-reliant workers are produced. Since the pupil realizes that a lost hour cannot be made up by a later application, there is no passiveness or dead time to encourage wandering thought. All the work, being done under direction, is better done. Each pupil is the absolute maker of his own success.

3. More work is accomplished and the work is more thoroughly done. The experience of the school has shown that more is accomplished.

<sup>1</sup> *Proceedings N.E.A.*, 1895, pp. 398-405; Preston W. Search, *The Ideal School*, p. 250; *Educational Review*, February, 1894.

4. More enthusiasm in work: The opportunity for daily and continuous promotion is an immense stimulus and results in enthusiasm for work.

5. Less discouragement: The individual is appealed to because he is permitted to work in his own place and according to his own strength. Pupils who otherwise would be lost are held in school because at the beginning of the year each pupil starts just where his work the year before stopped.

6. No opportunity for additional and outside work: The demands of the school do not crowd to the wall the duties and relations of home, church, and social life.

The individual system was tried successfully<sup>1</sup> in Central High School, Pueblo, Colorado, in 1894, the Oakland (California) High School, the Los Angeles High School, the Holyoke High School, in 1900, the Field High School, Leominster, Massachusetts, in 1899, the Girls' High School, Boston, and the San Diego High School, of California, according to Mr. Search's account.

The Pueblo plan was tried later<sup>2</sup> by Mr. Gilbert B. Morrison, principal of the Kansas City (Missouri) Manual Training High School. The results reported by him were very favorable. Pupils who ordinarily would have failed were able to make creditable grades. Some pupils were able to finish a subject in less than the prescribed time. If there were strained relations between the teacher and pupil, they soon died out. The experiment was repeated later by Mr. Morrison in the McKinley High School in St. Louis with the same favorable results. Pupils were able to get a better grasp of the subject and the percentage of failures decreased considerably.

The plan has been criticized unfavorably because it fails to recognize the school as a social institution, in which members should work not only for themselves but also with and for others. The entire loss of the recitation is regretted, as it offers opportunity for competition that comes with group activity, which is eliminated by a system of individual instruction. Although skilled teachers may succeed with the system, it is difficult for the ordinary teacher to use the method successfully. It involves an enormous amount of mental bookkeeping on the part of the teacher.

<sup>1</sup> *The Ideal School*, pp. 252, 253.

<sup>2</sup> Swift, *Mind in the Making*, pp. 254, 255.

The last objection is so serious as to constitute the deciding argument against the plan in the minds of many skilled administrators. Thus, I. M. Allen, principal of the Kansas City High School, while investigating plans to provide for individual differences taught an algebra class using the Pueblo plan in order to determine its merits. It secured practically all the results claimed for it, but the difficulties involved in keeping in mind the work of 25 or 30 pupils at different stages of advancement and of making daily prescriptions for them taxed his memory, inventiveness, and skill to the utmost. Obviously the ordinary untrained teacher, found in an ordinary high school, would have even greater difficulties to direct five sections of 30 pupils each by this method.

#### ORGANIZATION OF PRESCRIBED SUPERVISED STUDY PERIODS SUPPLEMENTARY TO RECITATIONS

The following plan aims to combine the advantages of individual and of class instruction.

##### *The Batavia plan.*<sup>1</sup>—

The plan was accidentally discovered by John Kennedy, superintendent of schools, in Batavia, New York. It was the custom in his schools to divide overcrowded rooms. For some time Mr. Kennedy had been interested in individual instruction as a supplement to class recitation, and it occurred to him, rather than to divide a class, to put in an additional teacher to find the weaknesses of the pupils and to help them remove the difficulties that kept them from making normal progress. As one teacher conducted the class exercise in the usual manner, the other gave individual help to slow pupils in the studying group, making it possible for them to keep up with the bright pupils in the room. Encouraged and surprised by the favorable results, the plan was introduced into other classes with equally good results. It was therefore demonstrated that the success of the experiment was not due to the strong personality of any one good teacher, but that it worked with others.

The experiment was then varied so as to repeat it in small classes with one teacher and also in high-school classes. Half of the class period was devoted to individual instruction, the other half was left for recitation purposes. The results showed that the plan was as successful

<sup>1</sup> *Proceedings N.E.A.*, 1901, pp. 295-300.

in a one-teacher room as in a two-teacher room. The experiment has been repeated successfully in Westerly, Rhode Island, in the Kansas City High School, and in some schools in Minnesota.<sup>1</sup>

The following advantages are claimed for the Batavia system.

Slow pupils are helped without overpressure. Bright children are kept from marking time. Special relief is brought to teachers whose health is injured by the strain of too large classes. Under this plan there is no strain. Children (and parents) are relieved from overwork and worry, as children no longer come home with large amounts of back work to make up. Order and discipline are greatly improved. Very many apparently hopelessly dull pupils may be intellectualized. Because of the small number of failures, pupils are not withdrawing from school in as large numbers as formerly, causing a large increase in high-school attendance. The number of pupils going to college is increased correspondingly. Instead of producing dependence, as it might seem at first glance, it produced independence. Because of the individual instruction provided, it is easy for pupils to make up for losses due to absences. The per capita cost of education has been reduced since the introduction of the plan.<sup>2</sup>

Unfavorable criticism of the plan is to the effect that too much help given to a pupil will make him dependent upon the teacher. However, discretion on the part of the teacher may overcome that. It is also found difficult in a one-teacher class to keep bright pupils profitably employed when the slow members of the class receive the needed individual help. The application of the Batavia plan in the high school includes various types of adjustment which will be described below.

*Supervision of study during the regular high-school school day.—*

Home study being an important factor in the high school, it is necessary to organize the pupil's time and work so as to make him able to do the required home study and to supervise that study.

Wm. C. Reavis, Oakland City, Indiana, worked out a plan by which both of these aims were to be accomplished.<sup>3</sup> Each pupil had to make out on a printed card a definite program for the school day, stating

<sup>1</sup> Bagley, *Class Room Management*, p. 222.

<sup>2</sup> John Kennedy, "The Batavia Plan after Fourteen Years of Trial," *Elementary School Teacher*, June, 1912, pp. 449-62.

<sup>3</sup> "The Importance of a Study-Program for High-School Pupils," *School Review*, June, 1911, pp. 398-405.

the periods of study and of recitation. The teacher in charge of the study room had on file duplicate copies of these cards, making it possible for him to supervise closely the work of each pupil. Each pupil was urged to divide his time at home in a similar manner, thus arranging for regular study hours and the parents were asked to see that the program was carried out. This was done by the large majority of pupils. The study-program card contained ten suggestions for effective study. The following are claimed to be the results of the method:

- 1. The problem of discipline in the school was largely solved as each had a regular program to follow and there was no time or necessity for idleness.
- 2. Since certain subjects were specified for home study each day no time was lost by the pupil in trying to decide what he should study. This is especially valuable to the pupils who have not learned how to organize their time. It helps them to decide how much time they are to take for the preparation of each subject.
- 3. The pupils avoid the mistake of preparing several subjects in one period without preparing any of them thoroughly.

*Required supplementary study hours have been used by some schools to supervise the pupils' study.—*

Dr. Otis Caldwell in his article "The Laboratory Method" mentions the following experiment:

In the Detroit Central High School a different plan has been followed in some experiments in algebra and Latin. Principal David McKinzie writes: "We have experimented somewhat with a plan to give additional direction to the weaker pupils of the ninth grade. I cite two cases of first course in algebra and Latin. At the end of ten weeks all pupils who were marked failing in these subjects were grouped together for special work in addition to their regular recitation periods. They were given twenty lessons each on the ground covered during a period of six or seven weeks. Each pupil was treated as a pathological subject. In the final test they were marked as follows:

LATIN	
Total number of pupils.....	15
Number marked "Excellent".....	1
Number marked "Good".....	6
Number marked "Fair".....	3
Number marked "Weak".....	1
Number marked "Not passed".....	3
Number marked "Left".....	1

## ALGEBRA

Total number of pupils . . . . .	20
Number marked "Excellent" . . . . .	2
Number marked "Good" . . . . .	4
Number marked "Fair" . . . . .	3
Number marked "Weak" . . . . .	5
Number marked "Not passed" . . . . .	3
Number marked "Left" . . . . .	3

It is plainly evident that a large number of ninth-grade pupils need greater direction than they receive at present, and I am convinced that we must resort to some plan to give them this additional help, if we are to eliminate excessive mortality in this grade.

In the year 1912-13 the Department of Mathematics of the University High School, at the University of Chicago, adopted the following plan of giving special attention to pupils who are likely to fail in the course or who wish to withdraw from the course because it is too difficult for them. The experiment was at first tried in first-year classes. In the first semester of the year 1911-12, ten first-year pupils failed, two were conditioned, and sixteen withdrew from the course before the close of the semester. In the following year, it seemed that this experience was likely to be repeated, as a few weeks after the beginning of the school year twenty pupils were not doing work of passing grade. It was hoped that with proper individual attention given early enough it might be possible to save some of these from failure and to keep them from withdrawing from the course. To give them this special attention in the classroom is not possible, and it is hardly fair to hold back a class for the sake of a few, if a different arrangement can be made. Therefore a special class was formed for those who could not keep above passing grade in their work. Pupils were registered for this class with the understanding that they were to return to the regular class as soon as they could do work above passing grade. Of the twenty regular members, five returned to their classes before the end of the semester. All of those were able to continue without help. In the final examination they received grades of 63, 65, 71, and 100, respectively (60 being the passing grade), one having left school before this time. Three pupils left school before the end of the semester and six of the remaining pupils failed. At the end of the school year this class had fourteen members. These pupils had covered and understood the year's work, but could not

remember it well enough to pass an examination. Some of them were apparently capable enough, but could be induced only at periods to do their best. Very little would have been gained by having these pupils repeat the course. Those who in the judgment of the teacher were worthy received credit for the course with the understanding that in case they wished to take up the second year's work, they would have to repeat the second half of the first year's course. This left four failures at the end of the second semester. These pupils must repeat the second half of the course, as a year's work in mathematics is required for graduation in the University of Chicago High School.

In the autumn of 1913 the number of failing pupils in Freshman mathematics was found to be very small. This is partly due to the change of classroom method brought about as the result of some experiments with supervised study to be described later in this paper. Although a special class was started in the expectation that the number of failing pupils might increase, it was discontinued after several weeks. The seven pupils failing in the first year's work are now allowed to remain with their classes, but are required to attend a special-study class organized for all pupils having difficulty in courses in mathematics given in the second, third, and fourth school years. Because of their small number it is possible in that study period to give to these seven pupils the needed individual attention. This arrangement makes it possible to give to the slow pupils no more attention during the regular class period than to the remainder of the class. Of the two plans just described, the preceding one was the more satisfactory. With no failure in any of the Freshman classes at any time during the year, the first-year course was completed more easily and with better results than ever before. On the other hand, most of the slow pupils were able to complete the year's work within the year's time with better results than are usually obtained by having them repeat the course.

For all pupils taking courses above the first year, a daily "study class" has been arranged. If a pupil is doing unsatisfactory work, i.e., below passing grade, he is requested to go to the study class in addition to his regular class. All absences from this study class are reported to the office and regulated by the office in exactly the same manner as absences in other classes. The time of the class is after school hours, at 3:00 P.M., and therefore not too convenient for the pupil, as it is likely to conflict with other appointments such as music lessons, dentist



appointments, etc. This serves as an incentive to a pupil to improve as rapidly as possible.

*Voluntary study hours in departments.—*

To give the benefit of this special class to the largest number possible, it was decided to urge pupils to attend if they were in danger of failing and needed instruction in addition to what they received in their classes. Those who failed to understand some particular lesson or had missed some work because of illness have the privilege of visiting the afternoon class and of asking questions at the proper time. A large number of pupils make use of this. It seems that this alone makes the undertaking worth while.

The study class is conducted as follows: As soon as the pupil has taken his seat, he begins to think about his lesson or, if no lesson is assigned, he finds review work. After the roll is taken (silently), the teacher passes from student to student, informing himself as to what pupils are doing, giving them help, suggestions, or whatever else is necessary to get them started on their work. Thus with twenty to twenty-five pupils in the room, the teacher is able to see each one three or four times in the hour. Some need very little help, others need several minutes each time.

It is surprising how rapidly some pupils improve who seem to have no habits of study when they come at first. At the present writing (tenth week), a number of pupils have improved enough in their regular class work to be excused by their teachers from further attendance during the study period. The fact that not only failures but often very good pupils are members of this class removes all feeling of disgrace so often attached to such classes. Parents have expressed themselves favorably about the plan, as doubtless it will do away with much of the private tutoring. Some parents regret that children are kept indoors at a time of the day when they should be outside, but are reconciled by the fact that the pupils are through with their home work or review work in mathematics, leaving them time for other things in the evening.

However, the pupil is not the only one who derives benefit from this study class. Without question the teacher learns much in working with slow pupils. The fact that more pupils fail in mathematics than in other subjects indicates either that teachers of mathematics are not as well prepared to teach their subjects as other teachers, which seems



unlikely, or that the subject itself is not as well adapted to the needs of the pupils. Without doubt the more teachers know of the difficulties boys and girls meet in a subject the better will they be able to shape a psychological course of study. The question might be raised concerning the possibility of more than one department in a school having a similar study period. This would require some administrative regulation, but there is no reason why it could not be satisfactorily arranged, especially for the few subjects in which individual assistance is most necessary.

*One required study period per week in each subject.—*

In the De Kalb (Illinois) High School study hours for several departments have been introduced.<sup>1</sup> Superintendent F. M. Giles of De Kalb describes the plan as follows:

We took five minutes from each of the six recitation periods, which we have in our school day, and put these together to make a thirty-minute study period coming once a day. In order that each class might receive the benefit of this period, we arranged that the first period class use the time on Tuesday; the second period class on Wednesday; and the third period class on Friday; the following week that the fourth, fifth, and sixth period classes use the period for supervised study. On Monday and Thursday the teacher uses this study period by having come to her room for individual attention, such students as she thinks may need individual help. So much for the plan.

In regard to the results, we have found that the plan is of greatest advantage with the younger students, and in the first part of a subject. That is, the younger students need direction in method of study, and all the students find it helpful when learning the method of attack upon a new subject.

We find it necessary, of course, to keep some definite check upon the work of the students. This is done by setting for them certain concrete problems in their study. For instance, to work out a certain number of examples; to be ready to prove a given theorem; to pick out the topic sentences in a given paragraph; to determine the most important points of a certain topic in physics; to pick out the leading events in a given historical topic, etc. We find the method works very well in mathematics, science, and history. Some difficulty has been experienced in the study of an English classic, such as *Macbeth*, in making the work of the study period definite. We are working at this problem.

Besides teaching methods of study, we have found one decided advantage of this study period is that by reason of it, the teacher gets a considerable

<sup>1</sup> See editorial in *School Review* for January, 1913, p. 58.

insight into the methods of study of the various students and can discover those who waste time, who have faulty methods of attack, etc.

Another point which we have found as a result of this work is that the teachers themselves are not at all clear as to definite methods of study. There have been a number of problems raised as to how a student should study.

The success of the plan is perhaps due to the following advantages:

1. Some progress is made in that the teacher has an opportunity to find out the real difficulties that the pupils experience in the various subjects.

2. Backward or dull pupils can receive assistance on points which are not clear, and can receive assistance at definite periods where otherwise they would tend to become discouraged.

The greatest disadvantage of the plan is the limited amount of time given to this study class. It gives the teacher little opportunity to supervise in any effective way the study of pupils. Pupils can come merely for assistance on difficult points. Little opportunity is offered for individual work with the pupils. The time which the teacher spends with the pupil is too short for the teacher to do much in aiding the pupils in acquiring proper methods of study.

In the Pittsburgh high schools, supervised study was arranged for by using one class period a week for each of the subjects, English, mathematics, Latin, and German. For this period no arrangement of lessons is made and no preparation is required, while no grade of any sort is given for the work of the hour. The time is used by each teacher as he or she may think best, either as (1) a review of the past work, (2) preparation for future work, (3) emphasis on particular portions of the work which require attention, (4) a "clearing-house" period for review, drill, handing back papers, discussion, or personal help to pupils who may be back in their work on account of excusable absences, or (5) "spell-downs," or other games to clinch the work covered in the class periods. After a year's trial, the experiment was considered a success because of the following advantages gained:

1. Increased efficiency in the quality of the work done, due to a better understanding of the work.

2. The students became enthusiastic over the conference hour and took a keener interest in the classroom work.

3. Pupils felt free to discuss the difficulties of the assigned work, since no marks of the hour were kept.

4. Every pupil was given an opportunity to have any part of the work covered in the regular class period discussed freely and any difficulties explained.

5. Teachers had an opportunity to develop right habits of thinking, proper methods of attacking new problems, and correct methods of study.

The following disadvantages of the plan are apparent:

1. The time allowed—one hour a week for each subject—is not sufficient to do the most effective work.

2. The time could more profitably be spent in really supervising the study of the pupils rather than, as now, in clearing up difficult points or emphasizing important points, which makes out of it little more than a regular recitation period.

3. Unless the teacher were a good disciplinarian and at the same time enthusiastic over her work, there would be a tendency to regard these periods as recreation periods when nothing was expected, and as a consequence little would be accomplished.

4. Only the brighter class of students who were efficient and who really required little help would be likely to bring up questions of difficulty. The careless or indifferent pupil who really needed to be taught how to study would have no points to discuss.

*The double- or divided-period plan is in use in many schools.—*

In the Joliet Township High School, this method of supervising study has been tried for about three years. In response to a letter of inquiry, Principal J. Stanley Brown describes the plan as follows:

The plan means that two periods of forty minutes each are set aside for first- and second-year classes. One of these periods is devoted to recitation work. The second period, which immediately follows the first with an intermission of a minute or two, is given up to supervised study. The teacher passes about the room, directs the work of the pupils, assists them when absolutely necessary, and thinks she accomplishes as much in that single period as the pupil alone unaided could accomplish in two periods. This supervised work has been applied especially to mathematics work, arithmetic, algebra, geometry, in the first and second years in the school. It has been applied with excellent results to beginning foreign language work, Latin, German, French. Of all the teachers who have had experience in this experiment, only one is unfavorable, so I think we can say the experiment is fairly successful. At any rate, we shall continue to use the plan mentioned until we find something

better. We have various other experiments going on all the time, most of which prove unsuccessful, but if after five new experiments, we secure one favorable result, we think the result was worth while.

At the University High School, Columbia, Missouri,<sup>1</sup> a plan is followed by which study under the teacher's supervision is made possible by reducing the time of the recitation to a minimum. Approximately one-third of the class hour is spent in recitation, leaving the remainder for study and careful assignment of lessons, thus reversing the common practice by which little time is given to study but most of it to the recitation. The class hour is divided into three parts: (1) Study: The object of this is not to make home study unnecessary, but to train the pupil so as to make more effective home study possible. He is taught the methods of study. (2) The assignment of the next day's lesson: The assignment is not necessarily new work. It supplements the home study done in class or continues and completes work begun there. (3) The recitation: The recitations are no longer poor and time consuming, because the preparation was well done. Thus the standard of the recitation is greatly raised.

*General testimony concerning success of supervised study.—*

The general testimony concerning the efficiency of supervised study in improving the work of pupils is strongly favorable. A good example is the testimony of Superintendent Charles C. Hughes, of Sacramento, California. A news item stating that in the Sacramento schools home study had been abolished and supervised study introduced suggested a letter of inquiry to Superintendent Hughes who replied in a letter as follows:

I feel quite sure of my stand in this matter, since as early as 1899 when city superintendent of schools of Alameda, California, I abolished home study, and substituted for it actual periods for each subject demanding study in the school-program, thus providing, under special supervision of the teacher, intensive study during school hours. The Alameda schools still retain the plan, and several of my principals who have become superintendents since are firm advocates of the plan, and have instituted it in their departments. I found that children were not learning how to study. The University and the high schools complained that students came to them ignorant in this matter. I found that the average home made no preparation for children's study. If the standard was low the light was inadequate, and the surroundings often

<sup>1</sup> J. L. Meriam, "Reaction and Study," *School Review*, November, 1910.

pernicious. As the home standards were raised, the social life of the family interfered, and the case was rare where a study room, or even a study place properly lighted, heated, or ventilated, was prepared for the child or children in the family. The parents were found either unable or unwilling to aid their children in study. We discovered that we were shifting to the home the duty which belonged to the school.

After the plan was put into operation we soon discovered that, although we had cut down the number of recitations considerably, the periods of intensive study under supervision made up many times for the reduction.

We also found that we could make a better measure of the children—that teachers were, under the old system, apt to pat the quick boy on the back and praise him, when he had studied probably not more than a few minutes at home, and scold his slower brother who had really put in considerable time, thus making a prig or bluffer of the one, and eventually discouraging the other. The school should not be a recitative machine. Study is more important than the recitation. We are getting better results in our work and the teachers know their pupils better. The school is taking upon its shoulders its whole duty, instead of only part of it.

Our plans for supervised study in the elementary schools are embodied in the inclosed schedules, which I am glad to send. We have extended the idea, only in part, to the high school. I have no printed data showing the efficiency of supervised study.

Under the first question I have given you the result which any teacher will testify to. The high schools are feeling it where it is in operation, since the boys and girls come to them better prepared as independent students. We have departmental work in our grammar grades and the success of departmental work depends very largely upon the abolition of home study. Young children would be handicapped and the departmental work ruined if each teacher were allowed to give as much home work as she believed her subject called for. Under our system, her judgment is immediately impeached when she gives more than the study period set aside for that purpose.

One of the defects of our modern high school with its fine specialization lies in the fact that each teacher gives as much as any child can do in an evening, which results in a child having three or four times as much as he can do, with the further result that he becomes discouraged, or attempts to bluff his way through.

#### *Experimental proofs of superiority of supervised study.—*

Before final conclusions are drawn regarding the efficiency of supervised study, the general testimony should be supported by exact measurements. The following three examples show the superiority secured by supervised study in mathematics and history.

To measure the effect of home study upon class progress, the following experiment was tried in the Department of Mathematics of the University High School, University of Chicago,<sup>1</sup> with two algebra classes. No home work was assigned in one section, so that the time usually taken up with the discussion of home work was gained for study. In another class, taking the same work, home work was assigned. The method of instruction in both sections was the same. Both sections spent fourteen lessons on the chapter on simultaneous linear equations, at the end of which the same test was given to both with the following results:

	A	B	C	D	F	Average
Section A (Home work with no supervised study) . . . . .	7.1	21.4	21.4	0	50	62.8
Section B (Supervised study with no home work) . . . . .	0	6.2	37.5	25	31.2	65.5

The low grades received in both classes may be explained by the fact that the test was not easy, and that no review was given in preparation for the test. If the time had allowed it, a second and fairer test would have been given.

Some idea as to the relative ability of these classes can be obtained from the results of the departmental final examination given at the end of the preceding semester. The grades were distributed as follows:

	A	B	C	D	F	Average
Section A . . . . .	25	25	37.5	12.5	0	81.4
Section B . . . . .	29.4	23.5	23.5	17.7	5.9	79.4

It is seen that section B, though a little weaker than section A, came out a little stronger on the average after supervised study without home work. The poorer students profited particularly by this method. Supervision seems to have enabled pupils at least to make up for the loss of time due to lack of assigned home work. The average amount

<sup>1</sup> "Teaching High-School Pupils How to Study," *School Review*, XX, 505-15.

of time spent on home work in section A was one hour and fifteen minutes per lesson. However, when the number of problems worked in each section was counted, it was found that in section A the average number of problems per pupil was two less than in section B. These results indicate that the amount of home work may be reduced in high-school classes, provided a method of instruction more effective than the common method is used.

It was interesting to notice the progress of the class working under supervision. At first the class was very slow, and it did not get along as rapidly as the other section. During the third lesson, however, it became evident that the pupils were learning to work independently. After the fourth lesson both classes were doing the same work, and they were kept together for the remainder of the time the chapter selected was being studied.

The section under supervision worked with more confidence and pleasure. This was especially true of the slow pupils. A girl who had failed during the first semester and was in the class on condition made a grade of 78 in the test on this chapter. Her grade in the final examination at the end of the first semester had been only 40. A boy who barely received a passing grade at the end of the first semester, and who at first seemed to be unable to do anything under supervision, suddenly found that with a little greater effort he could do as well as his classmates. There was an immediate improvement, and one day when a speed test was given he surprised everybody, even himself, by leading the class. A girl returning after a week's illness, and still in a weakened condition, said she "could not understand anything that was said," and felt greatly discouraged. By giving her a little more attention than the other pupils she was enabled to do the work before the end of the recitation, and had no further difficulty. Under the common system of instruction very little attention is paid to such cases. The teacher usually allows a certain amount of time in which the pupil must "catch up." Very often, in addition to the difficulties found in understanding the class work, "back work" is assigned. The injustice of all this at times drives some pupils to use dishonest means of getting possession of all this required work.

The following chapter, on "operations with fractions," was covered by both classes in six lessons. However, section A now worked under supervision, and section B took home work. A test was given to both



classes as soon as the chapter was completed. The grades in this test were as follows:

	A	B	C	D	F	Average
Section A.....	31.2	25	18.7	12.5	12.5	77.5
Section B.....	52.9	23.5	5.9	11.8	5.7	86.4

The average amount of time per lesson spent on home work was thirty-six minutes. The number of problems could not be computed because much oral work was done in section A, but there was very little difference. The power obtained by section B in the preceding chapter, while working under supervision, persisted and was strong enough to be helpful in the following chapter.

Before any final conclusions can be drawn, evidently further experimental work is needed. The results of the foregoing tests, however, corroborate the impression received during the time the study of these classes was being made. Both classes accomplished the same work within the regulation time, although section B did no home work and section A spent an hour and fifteen minutes daily on the assigned lesson. Section B, the weaker section at the end of the first semester, came out stronger than section A, after nearly three weeks of supervised study, and proved to be still stronger during the study of the next chapter. In both classes progress under the new method was very slow at first, but there was rapid improvement.

Following these experiments in the Department of Mathematics in the University High School, some of the instructors there practically omitted home work because their experience showed that better results could be obtained by giving the time of the class period to class work on the part of the pupil rather than to reciting the lesson. In the final departmental examination of the first year classes the section in which home work was minimized ranked second, while in the second- and third-year courses, the classes doing little home work ranked first. Thus with supervised study loss of home work did not retard the progress of these classes.

*The same superiority of supervised study was shown in an experiment in classes in mathematics in Bloomington, Indiana.<sup>1</sup>—*

Thirty-six pupils were divided into two groups of eighteen each and of abilities as nearly equal as possible. Their abilities had been

<sup>1</sup>J. H. Minnick, "An Experiment in the Supervised Study of Mathematics," *School Review*, December, 1913, p. 670.



determined by the average grades of three semesters' work in algebra. The group which was to have supervised study was not quite as strong as the unsupervised group. The unsupervised class recited the first period and prepared the assigned home work wherever they saw fit. The supervised class recited the second period and prepared the home work under supervision during the third period, with the understanding that no further work was expected of them. Every pupil was kept busy during this study period either by working on the assigned home work or by additional work. The experiment was carried on for fifteen weeks, and the weekly average marks received for recitation were compared. It was found that the supervised class had the higher average. The results of the examination are given in Table IV.

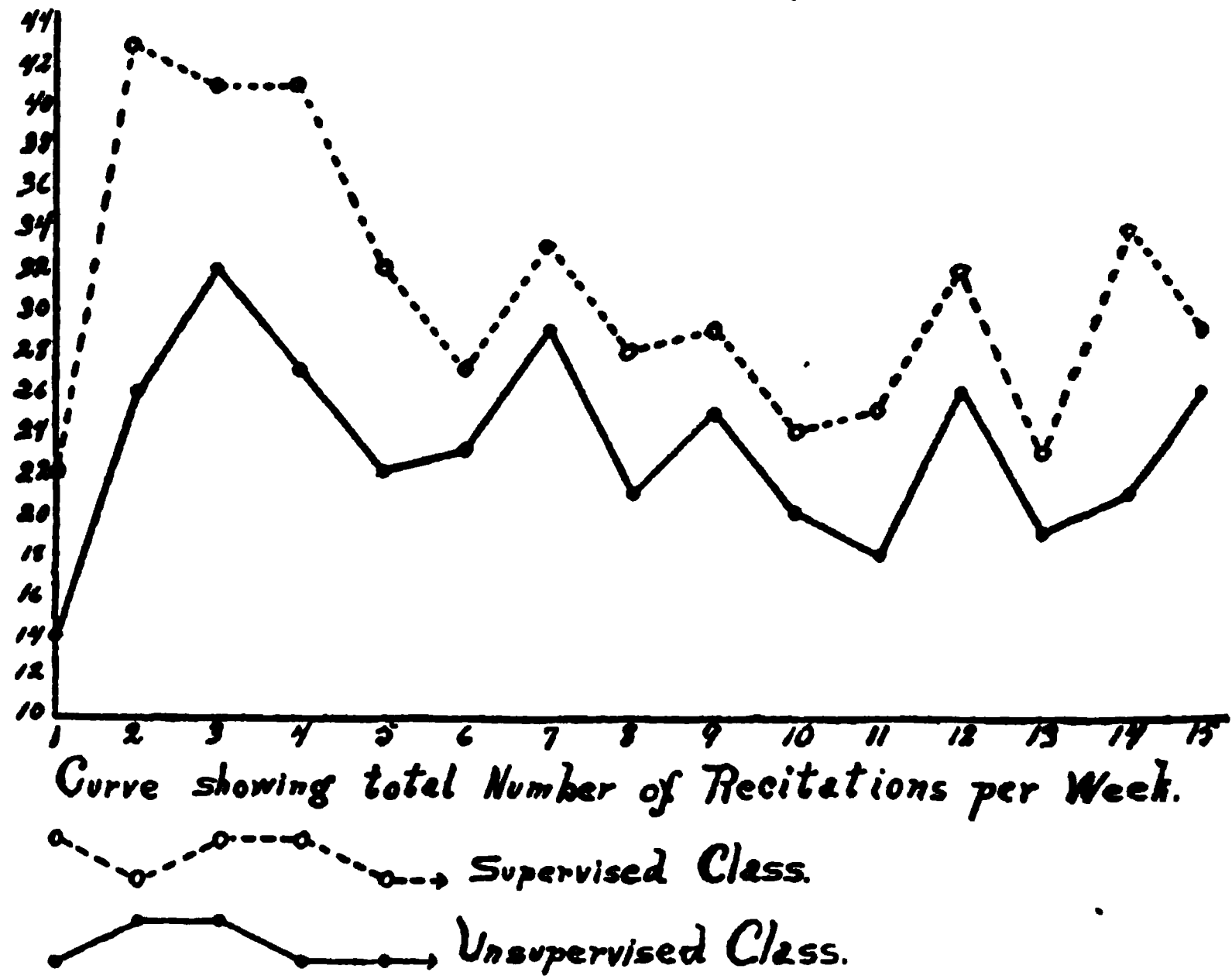
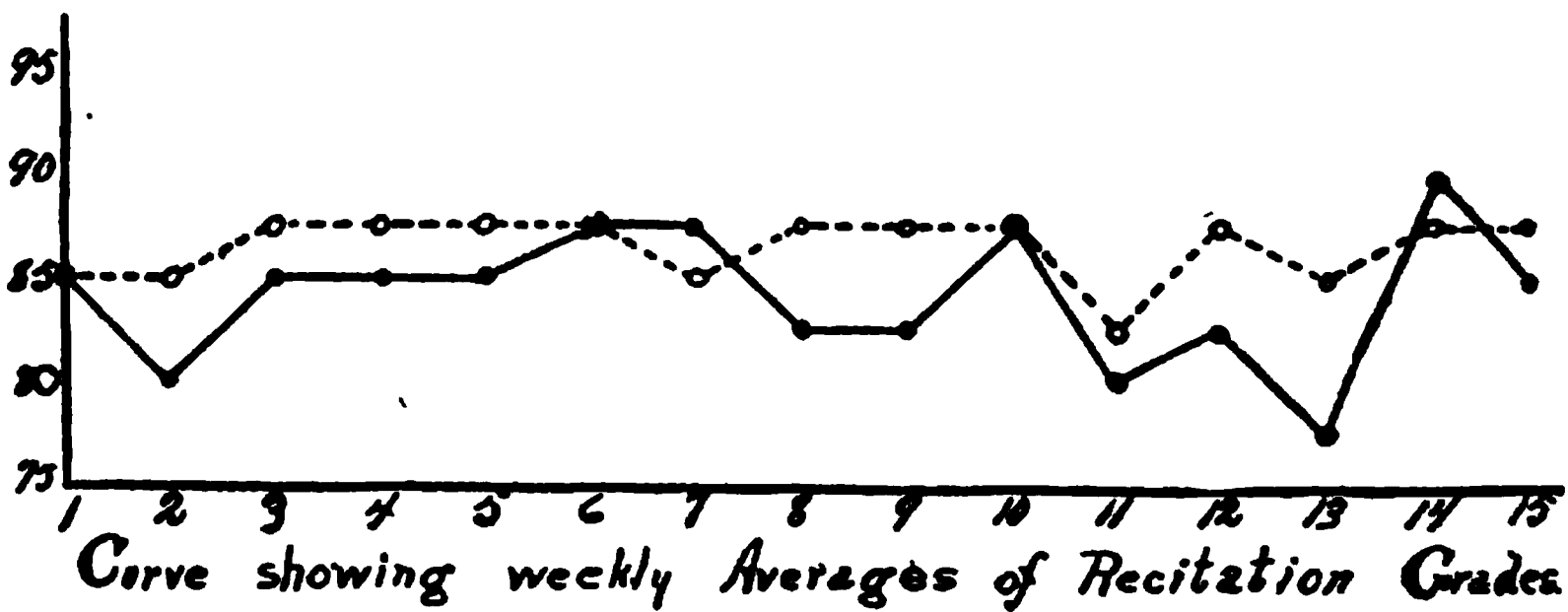
TABLE IV

KIND OF EXAMINATION	No. OF EXAM.	AVERAGE OF CLASS		AVERAGE NUMBER SOLVED	
		Supervised	Unsupervised	Supervised	Unsupervised
Six-weeks examinations .	{ 1	77.3	68.7	4.2	3.55
	2	81.2	80.4	4.3	3.9
Final examination.....	1	92.4	80.1	12.7	12.2
Tests consisting of new materials.....	{ 1	82.4	73.9	4.8	4.4
	2	87.3	70.2	4.8	3.7
	3	77.6	56.2	2.1	2.1
	4	82.8	77.3	4.2	3.8

Thus in each of the six-weeks examinations and the final examination the supervised class excelled in both the average grade and the average number of problems solved. As these examinations covered only the work discussed in recitation, the results indicate that this class had mastered the text better than the unsupervised class. In each of the remaining four tests the average grade of the supervised class was decidedly better than that of the unsupervised class and in only one case did the average number of problems solved by the unsupervised class equal that of the supervised class. As stated above, these tests consisted of problems which were new to both classes and the results therefore indicate that the supervised class was the more able to attack new problems, thus contradicting the arguments of those who believe that supervised study makes the student dependent upon the instructor.

A record of both the amount and the quality of the recitation work was kept. The amount of work was indicated by the number of times students made definite recitations, such as demonstrations and constructions. The quality of the work was indicated by a recitation grade given at the time the recitation was made. A comparison of these records for the two classes is shown in the graphs below. In each curve the horizontal units represent weeks.

The vertical units of the first curve represent weekly averages, while those of the second curve represent the total number of recitations per week. The continuous curves represent the work of the unsupervised class and the dotted curves represent that of the supervised class. An examination of these curves



shows that the supervised class had the higher average for ten of the fifteen weeks. The unsupervised class ranked higher for two weeks and the averages were the same for the other three weeks. The second set of curves shows that the supervised class made the larger number of recitations every week throughout the semester.

There were no failures in the supervised class at the end of the semester, while in the unsupervised class two pupils failed. The pupils' attitude was in favor of the supervised plan.

*There is need for similar studies in other subjects.—*

Mr. Garrett E. Rickard, principal of the Oakland City High School, Oakland City, Indiana, has prepared the following scheme for testing methods of instruction in history.

In investigating the relative merits of class recitation and supervised study in high-school history teaching, the preliminary problem divides itself logically into three parts: (a) the setting up of definite aims or ends to be reached by history teaching; (b) the devising in detail of two distinct methods of instruction, one based on class recitation, the other on supervised study; (c) the construction of laboratory conditions which shall leave but one variable element, namely, the method of instruction.

#### A. Aims

##### 1. *To develop the pupil's ability to answer questions based on:*

- (1) Acquisition of the proper concept of new and technical terms.
- (2) Mastery of the subject-matter of the text.
- (3) Interpretation of source material.
- (4) Abstracting collateral reading and connecting it with the outline of the text.

##### 2. *To develop the pupil's ability to act by:*

- (1) Arranging logical outlines and abstracts of the subject-matter of the text.
- (2) Arranging tabulations of time sequences of events and persons, grouped according to some convenient unit, as decades or centuries.
- (3) Drawing maps which shall more or less closely approximate some ideal which the instructor has previously analyzed into its elements.
- (4) Collecting material on a given topic, organizing it logically, citing references and preparing bibliographies.

#### B. Methods of instruction

##### 1. *Class recitation which involves:*

##### (1) On the part of the instructor:

- a) A definite assignment (usually taking the form of questions) involving one or more of the above aims. (Time 5 minutes at the beginning of the period; the following involves the remaining 35 minutes.)

- b)* A ten-minute examination at the beginning of each recitation on questions chosen at random from the previous day's recitation.
- c)* Elucidation of obscure points of previous day's assignment.
- d)* General instruction as to method of procedure. (See A, 2.)
- e)* Criticisms of pupils' performances, maps, tabulations, etc. (See A, 2.)

**(2) On the part of the pupils:**

- a)* Making a memorandum of the assignment. (Time 5 minutes at the beginning of the period. Remaining 35 minutes to be spent as follows:)
- b)* Answering questions on previous day's assignment.
- c)* Asking questions on previous day's assignment to clear up obscure points.
- d)* Submitting maps, manuscripts, etc., and criticizing those of other pupils.

**2. Supervised study which involves:**

**(1) On the part of the instructor:**

- a)* A ten-minute examination at the beginning of each day's recitation on questions chosen at random from the previous day's supervised study.
- b)* Assisting the individual pupil by the aid of reference books or questions to get proper concepts of the new and technical terms of the assignment just made.
- c)* Assisting the pupil definitely to arrange the outlines, tabulations, or maps of the assignment just made by pointing out to him the elements in his task to be striven for, and criticizing constructively his work.
- d)* Giving to each pupil an approximately equal amount of time.

**(2) On the part of the pupil:**

- a)* Making a memorandum of the assignment. (Time, 5 minutes. The following to occupy the remaining 35 minutes.)
- b)* Study with the teacher as per above.
- c)* Independent work with pen, books, and paper on the assignment just made, when he is not being assisted by the teacher.

**C. Laboratory conditions**

- 1. Have the whole class study and recite as usual for a given period. (Three weeks will be convenient.)
- 2. Have the pupils write on a topic discussed on the previous day for ten minutes at the beginning of each period.

3. Grade the papers with one of the following marks: 100-90, 89-80, 79-70, 69-60, 59-50, below 49, or in letters, A, B, C, D, E, F.
4. Average each pupil's grade for the period.
5. Rank pupils on the basis of their grades, putting the highest first, the lowest last.
6. Let the odd numbers constitute section A; the even numbers section B.
7. Allot to each section forty minutes of your time.
8. Proceed with section A by the class recitation method (B-1), with section B by the supervised study method (B-2).
9. Give each section the same assignment on the same day.
10. Instructor and pupils should keep an accurate dated record of the assignments.
11. All maps, tabulations, outlines, and reports should be graded as in C-3 above, and filed.
12. Bring both sections together for the same written examination at the close of each month.
13. These papers should be graded as in C-3, and filed.

In accordance with this scheme Mr. Rickard has been testing for the last two months the effect of supervised study. He introduced supervised study into a class in history whose average grades for one month had been found to be slightly lower than the averages of another group of pupils taking the same work. After this class had been subjected to supervised study, its daily average grades became higher than the average grades of the other class.

Thus it seems that all of these three experiments are favorable to supervised study. With supervised study in the high school, the amount of home work to be expected of pupils could probably be lessened, or omitted entirely if the class periods or the school day were lengthened. Even as little as five minutes added to each recitation would mean much to the supervised study classes while the addition of that much time would hardly be felt as a burden by pupils or teachers. There could always remain a certain amount of good home work for the brighter pupils, but the slow pupil would do almost all of his work at school during school hours under guidance of his teachers.

*Sometimes objection to supervised study is made on the ground that it would cause additional expense.—*

Mr. Minnick argues in his paper that supervised study would not increase the expense of instruction as much as it is supposed, because the

instructor can handle more pupils in a supervised class, because consultation periods could be abandoned and because the decreasing number of failures lessens the number of pupils repeating courses.

*A special technique is to be developed for supervised study classes.—*

Unless a system is such that the ordinary teacher can use it successfully without too much additional work, it will be of value to a small part of the teaching public. It is comparatively easy to organize supervised study in classes of mathematics, but rather difficult in other subjects. Assuming that the teacher himself has a knowledge of the principles of learning, the two general characteristics of conducting a supervised study period should be to find out what the pupil is thinking in struggling with the assigned lesson and to guide him properly without giving him too much assistance. The various suggestions given by teachers who have introduced supervised study in their classes are summarized in the following:

1. Teachers should take a new attitude toward home work. They should break themselves of the habit of prescribing the regulation amount of home work daily. Pupils cannot be expected to prepare lessons well unless they know definitely what is expected of them. Rather than to assign a lesson of doubtful difficulty and to receive lessons poorly and dishonestly prepared they may omit the home assignment altogether. Home work should have the character of completing the class work of the previous day, not of preparing for the next. This will enable even the slow pupil to apply his time to it with success and profit. Let the pupil struggle with really new work under the supervision of the teacher, but let home work be preceded by enough similar work in the classroom to furnish a pupil a clew to prevent his working in the dark. With this new rôle assigned to home work a change in class methods should follow.

2. The time ordinarily used for recitation should be shortened or omitted altogether. The time gained can then be used for supervised study and for the development of new work. This is the teacher's opportunity to teach pupils how to study. As he watches the pupils at work, instead of ignoring a pupil who is slow and apparently backward, unable to do what some more gifted pupil can easily do, he finds out the difficulty that prevents a normal rate of progress. Perhaps he must go back to the foundation, where the pupil has real knowledge, to make progress with new material possible. False assumptions, false errors,

false methods are corrected as quickly as they appear. By analyzing the habits of study of a pupil his weakness may be discovered and conscious steps be taken to form or strengthen certain habits that need attention. This work should receive most careful attention. Pupils when left to themselves do not appreciate the value of time. In the classroom they can be taught to start a piece of work promptly and to keep at it at a rate of accomplishment not too slow, but not too high to interfere with accuracy and neatness. An economical use of time is the true mode of securing leisure. Ability to select, arrange, or pick out facts according to their value or "method" is a most important factor. Method enables a larger amount of work to be done with satisfaction. The cultivation of undivided attention must be going on always with special emphasis upon effort to retain. One of the most essential habits of study to be developed constantly is the ability to read carefully with understanding, not mechanically. This ability is commonly presupposed. Yet it is often lacking. Let the teacher ask the pupils to retell what they have read. This will make them read with attention and concentration, learn how to skip judiciously, and will fix what they have read in the memory as in no other way.

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## SELECT BIBLIOGRAPHY FOR SUPERVISED STUDY IN HIGH SCHOOLS

BY W. A. BAILEY AND T. R. JOHNSON

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# NORTH CENTRAL HIGH SCHOOLS

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## INTRODUCTION

In view of the remarkable development of the public high school within recent years and the increased demands made upon it, facts pertaining to the organization and administration of high schools are significant. The schools in the North Central states have been subjected to more or less inspection for the past forty years, during which time the accrediting system providing for admission to college by certificate has become almost universal. Through this system the schools of each state have been subjected to more or less definite standardizing pressures. Differences in standards, however, from state to state and indeed within the same state have always been noticeable. In 1895 the North Central Association of Colleges and Secondary Schools was organized with the idea of setting up standards which might be attained by a selected group of schools in a number of states. This association has met with cordial support from the colleges and secondary schools. Today there are nearly 800 schools distributed through the North Central states on the approved list, i.e., the principals of these schools have convinced the Board of Inspectors that the work is up to the standard named by the association.

The annual reports submitted by 667 of these schools for the year 1911-12 have been analyzed with the view of setting forth a body of facts relating to the group of schools on the list for 1912. These schools are distributed in the different states as shown in Table I.

It is to be noted in the foregoing that the number of schools in the different states varies from 15 in North Dakota to 104 in Illinois. For the most part the number of high schools in the various states on the North Central list fairly represents the total distribution of high schools

TABLE I

State	No. of Schools	State	No. of Schools
Colorado.....	30	Missouri.....	37
Illinois.....	104	Nebraska.....	35
Indiana.....	50	North Dakota.....	15
Iowa.....	57	Ohio.....	97
Michigan.....	77	Wisconsin.....	87
Minnesota.....	58		

of the various types within each state. There are hundreds of small high schools throughout this territory that are accredited only within a single state by the state's own accrediting agency. Some of the differences are, no doubt, due to the fact that some states are more adequately equipped for inspecting these schools than are others, i.e., there are probably many schools not on the North Central list simply because of a lack of enough inspectors to visit them.

#### SIZE OF SCHOOLS

The actual enrolment of the high school is of importance in connection with the enforcement of standards. It is possible for the enrolment to be so small that the number found in the Senior class who will go to college is insufficient to justify either the high school or college in attempting to coördinate their work. Small enrolment means that classes must be small, which condition quickly places a limit on the number of elective courses or units which can be provided in the high school. On the other hand the small high school may mean a more narrowly selected group of students with a narrower range of interests and abilities.

There is rather wide variation within each state in regard to the enrolment of the approved schools; yet the median enrolment shows definite differences in this particular in the various states. This is shown in Table II.

TABLE II

State	Median Enrolment	State	Median Enrolment
Colorado.....	206	Missouri.....	204
Illinois.....	143	Nebraska.....	137
Indiana.....	244	North Dakota.....	112
Iowa.....	184	Ohio.....	215
Michigan.....	200	Wisconsin.....	184
Minnesota.....	140		

An interpretation of this table shows that one-half of the schools on this list in Colorado have an enrolment of 206 or fewer; in Illinois of 143 or fewer; in Indiana of 244 or fewer, etc. The high schools of Indiana, Ohio, Michigan, Colorado, and Missouri on the accredited list are decidedly larger than those in the other states.

Variations in the enrolment of high schools in the different states means variation in regard to the difficulty of conforming to the standards set up by the association. The large high school might have no difficulty in maintaining courses and conditions meeting the requirements for students going to college and at the same time be able to maintain many other courses for students with other interests. In other words, in case the school on this list is so small that a single course is offered, this course must conform to the North Central standard; hence the possibility of the coercive influence of such standards.

*Size of cities<sup>1</sup> supporting these high schools.*—The variation in the size of cities maintaining schools listed for approval by this association is of interest. The high schools of practically all the large cities are on the list; however, one-third of the whole number of approved schools are in towns of 5,000 or less; two-thirds in cities of 10,000 or less. Thus it is seen that the association has been an influential force in the small cities and towns.

TABLE III

State	Median Population	State	Median Population
Colorado.....	7,500	Missouri.....	7,500
Illinois.....	9,250	Nebraska.....	4,700
Iowa.....	4,700	North Dakota.....	3,430
Indiana.....	9,000	Ohio.....	8,200
Michigan.....	8,750	Wisconsin.....	4,700
Minnesota.....	5,830		

Table III shows the median size of cities in the various states supporting approved high schools. Rather striking contrasts appear in comparing Illinois with North Dakota or Iowa. The median size of cities in Iowa, Nebraska, and Wisconsin is practically the same. Illinois, Indiana, Michigan, and Ohio seem to belong to another group. Again, it is significant that such a large number of small towns and cities are willing to conform to the prescribed standards.

<sup>1</sup> Throughout the rest of this paper the word "cities" will be used to refer to both towns and cities.

*Enrolment and population.*—The variation in the size of cities and in the size of high schools is shown in Table IV. The cities are classified as A, B, C, etc., on the basis of population, Class A cities having a population of 2,500 or less; Class B cities having a population of 2,501 to 5,000, and so on.

TABLE IV  
COMBINED SUMMARY

Total Enrolment	A	B	C	D	E	F	G	Total
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and above	
Under 50.....	4	4	1	.....	1	.....	.....	10
51 to 75....	11	8	2	.....	.....	1	3	26
76 to 100....	14	20	8	1	2	.....	3	50
101 to 125....	25	34	16	1	5	2	3	86
126 to 150....	12	33	20	4	4	5	.....	78
151 to 175....	4	25	17	5	1	.....	.....	52
176 to 200....	1	19	11	2	8	.....	.....	41
201 to 225....	.....	4	1	7	3	4	.....	19
226 to 250....	2	10	18	19	9	1	.....	59
251 to 275....	.....	.....	5	4	3	5	2	19
276 to 300....	.....	5	7	10	10	11	1	44
301 to 350....	1	.....	4	6	10	11	2	34
351 to 400....	.....	.....	1	5	5	8	3	22
401 to 450....	.....	.....	.....	3	4	10	.....	17
451 to 500....	.....	.....	.....	.....	.....	10	4	14
501 to 550....	.....	.....	.....	.....	1	8	2	11
551 to 600....	.....	.....	.....	.....	.....	8	1	9
601 to 650....	.....	.....	.....	.....	.....	3	3	6
651 to 700....	.....	.....	.....	.....	1	5	1	7
701 to 750....	.....	.....	.....	.....	.....	3	4	7
751 to 800....	.....	.....	.....	.....	.....	1	2	3
801 to 850....	.....	.....	.....	1	.....	1	3	5
851 to 900....	.....	.....	.....	.....	.....	1	2	3
901 to 950....	.....	.....	.....	.....	.....	1	3	4
951 to 1,000....	.....	.....	.....	.....	.....	.....	2	2
1,001 to 1,050....	.....	.....	.....	.....	.....	1	3	4
1,051 to 1,100....	.....	.....	.....	.....	.....	.....	1	1
1,101 to 1,150....	.....	.....	.....	1	.....	.....	2	3
1,151 to 1,200....	.....	.....	.....	.....	.....	.....	2	2
1,201 to 1,250....	.....	.....	.....	.....	.....	.....	5	5
1,251 to 1,300....	.....	.....	.....	.....	.....	.....	2	2
1,301 to 1,350....	.....	.....	.....	.....	.....	.....	1	1
1,351 to 1,400....	.....	.....	.....	.....	.....	.....	1	1
1,401 to 1,450....	.....	.....	.....	.....	.....	.....	.....	.....
1,451 to 1,500....	.....	.....	.....	.....	.....	.....	3	3
1,501 to 1,600....	.....	.....	.....	.....	.....	1	3	4
1,601 to 1,700....	.....	.....	.....	.....	.....	.....	1	1
1,701 to 1,800....	.....	.....	.....	.....	.....	.....	3	3
1,801 to 1,900....	.....	.....	.....	.....	.....	.....	1	1
1,901.....	.....	.....	.....	.....	.....	.....	.....	.....
	74	162	111	69	67	101	73	667

This table should be read thus: Of the high schools enrolling fewer than 51 pupils four were in cities with a population of 2,500 or under; four in cities of 2,501 to 5,000 population; one in a city of 5,001 to 7,500 population, etc. An analysis of this table, by reading from left to right, brings out the striking variation in the size of the city in which is found a given-sized high school. For example, high schools with an enrolment of 101 to 125 are found in towns and cities of practically all sizes. Reading from the top to the bottom, one can see the wide variation in the size of high schools in cities of the same class. For example, cities of 2,500 and under are supporting accredited high schools varying in size from 50 or less to 301-350; cities of 7,501 to 10,000 have high schools as small as 100 and as large as 850. It is seen that one-eighth of all of these schools enrol 100 or fewer students; one-half, 200 or fewer; three-fourths, fewer than 351. The middle 50 per cent of the schools enrol from 125 to 350 pupils. Ought not these central tendencies and these variations be considered in determining standards for accrediting?

The material presented in Table IV is of value in comparing cities in relation to high-school enrolment and population. In case of a desire to compare the high-school enrolment of a particular city with the enrolment in other cities of the same class, the following plan might be carried out. Let us say that the city has a population of 4,500 and an enrolment of 100. Now referring to Table IV above, we find that the city is in class B. By running down the column headed "Total Enrolment" to 76-100, then to the right, to column B, it is found that 20 cities in this class have an enrolment of 76 to 100; thus other cities of this class have the same sized high schools. However, when it is noted that there are data for 162 high schools in cities of this class, it becomes important to find its relation to the whole group of schools. The answer is 130, or 80 per cent of the cities show a larger enrolment while only 7 per cent show a smaller enrolment. As a means of ready reference the following table of medians might be used. This table shows the median enrolment for each class of cities.

Class	A	B	C	D	E	F	G
Median enrolment.....	109	162	175	243	250	450	841
No. cases.....	74	162	111	69	67	101	73

*Number of teachers and enrolment.*—One index of the adequacy of the provision made for the high school in any community is the number of

TABLE V

CORRELATION OF TEACHERS AND ENROLLMENTS

Total No. of Teachers	50	51 to 100	101 to 150	151 to 200	201 to 250	251 to 300	301 to 350	351 to 400	401 to 450	451 to 500	501 to 550	551 to 600	601 to 650	651 to 700	701 to 750	751 to 800	801 to 900	901 to 1,000 and Over	Total
4.....	15	32	30	1	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	78
5-6.....	12	56	55	28	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	159
7-8.....	2	16	34	32	33	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	124
9-10.....	4	4	8	12	22	11	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
12.....	.....	2	1	8	10	16	10	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	52
14.....	1	.....	1	.....	4	7	8	5	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
16.....	.....	2	1	.....	3	3	5	4	5	1	.....	.....	.....	.....	.....	.....	.....	.....	25
18.....	.....	1	.....	.....	.....	4	4	4	3	4	1	.....	.....	.....	.....	.....	.....	.....	22
20.....	.....	.....	.....	.....	.....	.....	1	2	2	4	.....	.....	.....	.....	.....	.....	.....	.....	12
22.....	.....	.....	1	.....	.....	.....	.....	2	1	2	.....	.....	.....	.....	.....	.....	.....	.....	13
24.....	.....	.....	.....	.....	.....	.....	.....	1	.....	3	2	.....	.....	.....	.....	.....	.....	.....	8
26.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
28.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
30.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
32.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
34.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
36.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
38.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
40.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
42.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
44.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
46.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
48.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
50.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
52.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
58.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
60.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
62.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
64.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
66.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
68.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
75.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
78.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
100.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Median teachers	34	113	131	81	78	48	35	20	18	16	6	9	6	6	8	8	8	32	660
	4	5	7	7	11	11	12	16	13	20	20	24	25	25	28	36	32	50	

teachers employed. Inasmuch as the North Central Association refuses to approve a school with fewer than four teachers, this is the smallest number of teachers reported. However, wide variation exists in practice in regard to the number of teachers in these schools. The range is from 4 to 100 and above, in schools enrolling fewer than 50 to 1,000 and over. "Four-teacher" schools vary in enrolment from 50 or less up to 151-200; "six-teacher" schools vary from 50 or less to 301-350. The complete distribution is given in Table V.

From the foregoing table it is seen that wide variation exists in regard to the number of teachers employed and the actual size of the high school. For example, of the 34 high schools enrolling 50 or fewer students the number of teachers varies from 4 to 13 or 14. Again, reading from left to right, 9- to 10-teacher schools are found enrolling as few as 50 pupils, and as many as 300 to 350 pupils. Certainly the opportunity for work in the schools represented by these extremes is not the same. Standards that could be met readily in the school with 10 teachers and 50 pupils might be impossible in the schools with the same number of teachers and 350 pupils.

*Differences from state to state.*—Certain differences in the size of school represented by the number of teachers appears in an analysis of the material in the different states. Table VI shows the median number of teachers in the different states.

TABLE VI

State	Median No. of Teachers	State	Median No. of Teachers
Colorado.....	9	Missouri.....	6
Illinois.....	9	Nebraska.....	5
Indiana.....	10	North Dakota.....	7
Iowa.....	7	Ohio.....	8
Michigan.....	8	Wisconsin.....	6
Minnesota.....	8		

It is seen that the schools in Indiana are relatively large while the schools in Nebraska are relatively small.

In order to bring out more clearly the differences in the various states, Table VII has been prepared.

The meaning of this table becomes clear when read as follows: In Colorado the six-teacher schools have a median enrolment of 150; the

eight-teacher schools have a median enrolment of 208. In Illinois the six-teacher schools have a median enrolment of 100 and the eight-teacher schools, an enrolment of 133, etc. These figures indicate that the different states are meeting the problem of the distribution of the number of pupils per teacher on somewhat different lines.

TABLE VII

State	Median Enrolment	6	8
		No. of Teachers	
Colorado.....	" "	150	208
Illinois.....	" "	100	133
Indiana.....	" "	140	250
Iowa.....	" "	100	125
Michigan.....	" "	106	120
Minnesota.....	" "	75	110
Missouri.....	" "	110	175
Nebraska.....	" "	87	137
North Dakota.....	" "	75	125
Ohio.....	" "	175	225
Wisconsin.....	" "	150	196

In view of these differences in enrolment for the same sized teaching force it would seem that the outside standardizing agencies would affect these schools with widely varying pressures. Is it not probable that many criticisms of the pressures brought to bear by accrediting agencies are due to just this variation? Surely some schools find it much more of an effort to conform to the North Central Association standards than others. It would be of interest to know more about the comparative results attained in the schools of Ohio and Indiana with relatively large numbers of pupils per "six-" and "eight-teacher" school, as compared with Iowa and Michigan with relatively small numbers of pupils.

*Standard ratio of teacher to enrolment.*—Table VIII, showing the median number of teachers per enrolment unit, should enable school authorities to determine quickly the status of a particular school in this connection.

*Average number of students per teacher.*—Another way to consider the provision which different communities make for their schools is by dividing the total number of students by the total number of teachers in the high school (taken irrespective of the number of recitations taught by



TABLE VIII

	Enrol- ments of 50 or less	51 100	101 150	151 200	201 250	251 300	301 350	351 400	401 450
Median number teachers.....	4	5	5	7	8	11	12	16	15

	Enrol- ments 451 500	501 550	551 600	601 650	651 700	701 750	751 800	801 850	851 1,000 and Over
Median number teachers.....	20	20	24	25	25	28	36	32	50

the teacher). The average number of pupils per teacher calculated on this basis varies from as low as 5 pupils per teacher to as high as 50 pupils per teacher. Table IX shows this variation.

TABLE IX

Total No. Students per Teacher	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
5.....	1	5	2	.....	1	.....	.....
10.....	15	14	5	1	2	2	7
15.....	15	23	21	10	8	11	3
20.....	24	51	37	20	23	34	9
25.....	16	44	30	20	23	30	28
30.....	2	20	9	12	8	16	12
35.....	.....	3	5	5	1	3	1
50.....	1	.....	.....	.....	.....	2	1
No. cases.....	74	160	109	68	66	98	61
Median.....	20	20	20	20	20	20	25

This table becomes clear when read thus: Of the 74 cities of 2,500 in population and under, one city employs a high-school teacher for every 5 pupils; 15 employ one teacher for every 10 pupils; 24 employ one teacher for every 20 pupils; 16 employ one teacher for every 25 pupils; two cities employ one teacher for every 30 pupils; and one city employs one teacher for every 50 pupils.

It is noteworthy that no clear correlation exists between the average number of students per teacher and the size of city; small cities adhere quite as closely to the central tendency in this particular as do the larger

cities until the population reaches 50,000; e.g., the employment of one teacher for every ten pupils is found in cities of every class. The median number of pupils per teacher, however, for each class is identical in all cities below 50,000 population.

This table is of interest in that it shows a fairly well standardized tendency in this particular. However, within the variations set forth it would seem probable that such striking differences in practice would be accompanied with equally striking differences in school achievement. The opportunity for individual contact between teacher and pupil is certainly far different in a city with an average of 5 or 10 pupils per teacher than in a city with an average of 30 to 50 pupils per teacher. Such differences surely call for different schemes of organization and administration if similar results are to be attained. In the face of such differences there can be but little doubt that the pressures of outside standardizing agencies fall with unequal intensity on the different schools. It would be of great administrative value to have a quantitative measure of the differences in achievements actually attained in these schools. If the results are the same when the ratio is 1 to 30 as it is where the ratio is from 1 to 10 in towns of the same class, we should know it.

ORGANIZATION

*Number of daily recitations.*—The number of daily recitations which a school provides is one measure of the flexibility or adaptability of the curriculum to the needs of the children. The four-year high school with a single curriculum and no electives with each class reciting daily will ordinarily offer 16 recitations per day. If the students are to be given

TABLE X

State	Range of No. of Recitations	Median No. of Recitations per Day
Colorado.....	15-100	40
Illinois.....	15-195	38
Indiana.....	15-155	50
Iowa.....	15-175	39
Michigan.....	20-150	38
Minnesota.....	15-230	38
Missouri.....	15-130	35
Nebraska.....	15-345	25
North Dakota.....	15- 75	25
Ohio.....	15-235	38
Wisconsin.....	15-105	35

a choice, additional recitations must be provided. A wide range of electives in the small high school is unusual, partly because of the fact that a small enrolment means a narrower range of individual differences and partly because of the distaste on the part of the pupils and the teachers for the very small classes which necessarily follow, e.g., a Senior group of ten pupils does not permit of very many elective divisions. The exact distribution of the range in the number of recitations per day in the different states is given in Table X. This table should be read thus: In Colorado the number of recitations offered in the high schools on this list ranges from 15 to 100, with a median of 40; in Illinois the range is from 15 to 195, with a median of 38 and so on. The median number in Indiana is twice as large as Nebraska or North Dakota.

The minimum of 15 recitations found in practically all states indicates the effect of the college-entrance requirement of 15 units. A study of these figures suggests again that some of the schools are barely able to meet the North Central standard, while others, so far as the number of recitations is concerned, might offer a wide range of courses to suit many different tastes and abilities.

*Relation between number of recitations and size of city.*—It is important to know the distribution of the number of recitations offered in relationship to the population within the territory. Table XI shows this relationship and the variation in number of recitations offered in cities of the same size; for example, of the 71 cities of 2,500 population or under maintaining high schools on this list, two have 15 recitations; thirteen, 16 to 20 recitations; seventy-six, 21 to 25 recitations; while one maintains 46 to 50 recitations. Similar variations are to be noted in the cities of each class. Reading from left to right, schools of 21 to 25 recitations are being maintained in cities of every class.

Half of all of the high schools represented have more than 35 recitations per day. The conflict between the so-called demands of the community and the demands of the standardizing agencies present a much less difficult problem for solution in the high school having many recitations, than in the school having few recitations. It may be seen that hundreds of these cities might be able to offer widely diversified courses of study without increasing the number of daily recitations at all. The factor of imitation, however, is so strong that pupils tend to elect the same courses so that no doubt thousands of these recitations are merely duplicate "sections" in the same subject.

TABLE XI

No. Daily Recitations per School	A	B	C	D	E	F	G
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
15.....	2	4	1	.....	.....	.....	.....
16- 20.....	13	1	4	1	2	.....	2
21- 25.....	26	31	12	1	2	2	2
26- 30.....	11	44	17	4	2	2	.....
31- 35.....	9	30	23	5	5	4	1
36- 40.....	5	24	11	8	7	1	1
41- 45.....	4	9	11	6	7	8	.....
46- 50.....	1	3	12	10	7	1	3
51- 55.....	.....	3	4	8	5	7	.....
56- 60.....	.....	1	4	2	6	6	1
61- 65.....	.....	.....	1	3	6	3	2
66- 70.....	.....	.....	.....	2	4	5	.....
71- 75.....	.....	.....	.....	4	1	7	1
76- 80.....	.....	.....	.....	2	1	3	.....
81- 85.....	.....	.....	.....	1	3	3	.....
86- 90.....	.....	.....	.....	.....	1	5	.....
91- 95.....	.....	.....	.....	.....	1	3	1
96-100.....	.....	.....	.....	.....	.....	4	1
101-105.....	.....	.....	.....	.....	.....	4	.....
106-110.....	.....	.....	.....	.....	1	.....	.....
111-115.....	.....	.....	.....	.....	.....	.....	2
116-120.....	.....	.....	.....	.....	.....	1	.....
121-130.....	.....	.....	.....	.....	.....	4	1
131-140.....	.....	.....	.....	.....	.....	2	.....
141-150.....	.....	.....	.....	.....	.....	1	4
151-175.....	.....	.....	.....	.....	.....	.....	1
176-190.....	.....	.....	.....	.....	.....	1	1
191-200.....	.....	.....	.....	.....	.....	.....	3
201-225.....	.....	.....	.....	.....	.....	.....	4
226-345.....	.....	.....	.....	.....	.....	.....	1
	71	150	100	57	61	77	32

Median for all—35.

Table XII shows the standard number of recitations offered in the towns of various sizes (based on medians).

TABLE XII  
STANDARD NUMBER OF RECITATIONS BASED ON POPULATION

	CLASS OF TOWN						
	A	B	C	D	E	F	G
No. of cases.....	71	150	100	57	61	77	32
Median No. Daily Recitations ...	23	29	34	47	49	70	107

*Number of daily recitations taught by the teachers.*—In view of the standard set up by the North Central Association recommending that no teacher teach more than five recitations a day and prohibiting a teacher from teaching more than six recitations a day, it is interesting to note the wide variations that exist in the actual number taught. Table XIII

TABLE XIII

Total No. of Daily Recitations	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total
1.....	7	24	16	12	15	19	6	100
2.....	12	23	29	11	25	33	17	150
3.....	21	48	38	20	33	73	22	265
4.....	62	111	132	40	76	156	44	621
5.....	135	341	273	198	263	567	419	2,196
6.....	121	348	216	171	208	249	204	1,515
7.....	1	5	4	5	2	10	2	29
8.....	.....	1	.....	1	3	1	.....	6
9.....	.....	.....	.....	.....	.....	1	.....	1
	359	901	708	458	626	1,109	714	4,875

shows this variation, distributed for population of cities. This table becomes clear when read as follows: There are seven teachers in cities of 2,500 or under who have one recitation only; twelve with two recitations only; twenty-one with three recitations only, etc. It is to be noted that of the 359 cases in cities of this population the range of recitation taught by teachers is from one to seven. In cities of 2,500 to 5,000 the range is from one to eight, etc. The numbers in the right-hand column indicate the wide range of variation. There seems to be no great difference in this particular in the large and small cities, as the small city seems to be almost as likely to provide for a small number of daily recitations for each teacher as does the large city. The most frequent arrangement is for each teacher to teach five recitations, yet it should be noted that there are 1,136 teachers with fewer than five recitations and 1,541 teachers with more than five recitations. Indeed there are 36 teachers with more than six recitations, which is *a violation of the standard of the Association*. The exact number of recitations that each teacher should be asked to teach is still an unsolved problem. This is a question of importance not only on account of the financial cost involved, but because of its educational implication. The wide variation in practice suggests the desirability of comparing results attained by the systems using different plans.

*The superintendent as a teacher.*—Considerable interest has been shown in regard to the exact amount of teaching done by the superintendent. Table XIV shows the extent of teaching on the part of the superintendents throughout the states (Indiana not included in this table). It is to be noted that slightly over half of the 496 superintendents report the teaching of one or more recitations per day in the high school.

TABLE XIV

Total	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
0.....	6	28	39	36	42	54	26
1.....	12	40	28	6	6	5	.....
2.....	22	47	14	3	3	4	1
3.....	18	12	4	.....	.....	.....	.....
4.....	9	9	6	3	2	.....	2
5.....	1	2	1	.....	1	1	1
6.....	.....	2	.....	.....	.....	.....	.....
	68	140	92	48	54	64	30
Percentages.....	91	80	57	25	32	15	13

In the 86 cities of 2,500 or under reporting, 12 superintendents teach one recitation, 22 teach 2 recitations, 18 teach 3 recitations, 9 teach 4, and 1 teaches 5, recitations. The same variation exists in cities of 2,501 to 5,000 population. So that there seems to be no definite policy in connection with the exact number of recitations to be taught each day by the superintendent in the smaller cities. As the cities grow larger a decreasing percentage of superintendents teach, as is shown by the decrease from 91 per cent to 13 per cent. At least two questions are involved in connection with the teaching done by the superintendent. One is the fact that the time which is given to teaching of necessity limits the amount of supervision possible in the high school or in the elementary school. This is of significance in view of the fact that such a large number of teachers are inexperienced. Surely the time spent in teaching by the superintendent is an important limitation in the matter of training teachers in service. On the other hand, the fact that superintendents do teach in the high school gives them a certain intimate contact with the high school which should be of value.

*State differences.*—Certain variations are to be observed in the percentage of superintendents who teach in the different states.

TABLE XV

State	Percentage of Superintendents Who Teach	State	Percentage of Superintendents Who Teach
Colorado.....	46	Missouri.....	35
Illinois.....	50	Nebraska.....	57
Iowa.....	40	North Dakota.....	73
Michigan.....	34	Ohio.....	25
Minnesota.....	48	Wisconsin.....	57

These differences in policy parallel somewhat closely the differences in the size of the high school. A larger percentage of superintendents teach in states with small high schools than in states with large high schools.

*Length of recitation period.*—A minimum standard of “40 minutes in the clear” for each recitation is set up by the Association. Wide variations exist in actual practice. Table XVI shows the length of the recitation period in minutes distributed for the various sized cities. Two well-defined modes appear in this table, 40 minutes and 45 minutes. There seems to be no relation between the size of cities and the length of recitation period as the central tendency and the variations are evenly distributed throughout the different-sized cities. Evidently factors

TABLE XVI

Total Length in Minutes	A	B	C	D	E	F	G
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Above
35.....	I						
39.....		I					
40.....	42	88	58	27	25	42	23
41.....		I		I			
42.....	5		I	I	I	2	5
42½.....	I	4	2	I			
43.....	2	10		2	I	I	7
44.....		2	2		I		2
45.....	20	56	47	38	37	51	29
47½.....						2	3
50.....	I						3
53.....					I		
55.....	I		I		I	I	I
60.....						I	
80.....			I				
	73	162	112	70	67	101	73

other than the pressure of the standards set up by the Association are at work, because over half of the cities provide a longer period. No striking differences are to be found among the different states in this particular.

*Large classes.*—The Association has sought to discourage large classes by setting thirty in a class as the maximum to be allowed. Many schools have violated this standard; the actual extent of this violation is shown in Table XVII. This table should be read thus: In cities of 2,500

TABLE XVII

Total No. Classes with Over 30 Pupils	A	B	C	D	E	F	G	Total
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Above	
0.....	55	115	69	49	36	49	30	403
1.....	7	18	17	9	9	7	3	70
2.....	7	13	20	5	7	13	7	72
3.....	2	3	5	1	6	14	3	33
4.....		1	1	1	3	4	1	11
5.....					3	6	3	12
6.....		1		2	2	2	2	9
7.....		2			1	1	2	6
8.....				1			1	2
9.....							1	1
10.....							2	1
11.....							1	2
12.....							1	1
13.....		1					1	1
14.....						1	1	2
15.....						1	1	2
20.....							2	2
22.....							1	2
30.....							1	1
31.....							1	1
32.....							1	1
91.....							1	1
116.....							1	1
	71	154	112	68	67	98	68	638

population or under, 55 have no classes enrolling more than 30 pupils; 7 have one class with more than 30; 7 have 2 classes with more than 30; 2 have 3 classes with more than 30. Cities of all sizes violate this standard, but the large cities are the worst offenders. Summarizing, it is seen that slightly over one-third of the cities violate the standard by having from 1 to 116 classes enrolling more than 30 pupils. In view of



this situation it would seem wise to do one of two things—either abolish the standard or revise it.

*Length of school year.*—The North Central Association makes a requirement that the school year shall be at least 36 weeks in length. Table XVIII shows the distribution in this particular. This table should

TABLE XVIII

Total No. Weeks	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
32.....		I		I			
36.....	58	111	61	44	27	30	7
37.....				I			I
38.....	12	33	34	6	25	41	21
39.....							
40.....	4	16	16	17	15	30	43(42-1)
	74	161	112	69	67	101	73

be read thus: Of the 74 cities with a population of 2,500 and under, 58 have a 36 weeks' term 12, have a 38 weeks' term, and four have a 40 weeks' term, etc. Only two schools fail to reach the standard of the Association. On the other hand, over 300 schools are maintained for a period longer than required by the Association. Three well-defined modes appear, 36, 38, and 40 weeks. This is probably due to the fact that people customarily think of the school year in terms of months and half-months, rather than terms of weeks; and payments are usually made on the basis of an even number of weeks.

INSTRUCTIONAL STAFF

*Sex of superintendents.*—In view of the increase in the number of women employed in the public schools, it is important to know the extent to which women have been selected to fill the executive positions in the schools of the North Central Association list. Table XIX shows the

TABLE XIX

Sex	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Male.....	70	159	108	68	62	95	66
Female.....	3	I	I	.....	I	3	I
	73	160	109	68	63	98	67

distribution of the superintendents as to sex. This table should be read as follows: Of the 73 cities of 2,500 or under, 70 of the superintendents are men and 3 are women, etc. Out of the 637 superintendencies listed for sex, only 10 are filled by women.

*Sex of high-school principals.*—High-school principalships have attracted women in greater numbers than have city-school superintendencies. Table XX shows the exact distribution of high-school principalships as to sex. This table should be read as follows: Of the 73

TABLE XX

Sex	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Male.....	41	107	89	57	57	92	65
Female.....	32	50	17	11	8	5	2
	73	157	106	68	65	97	67

cities with a population of 2,500 or under, 41 employ male, and 32 employ female principals. Of the cities of 2,501 to 5,000 population, 107 employ male principals and 50 employ female principals. Out of a total of 643 principalships, 125 women are employed, which is in striking contrast to the number of women employed as superintendents, in the same cities. However, certain differences are to be noted in the cities of the different sizes; the small city of 2,500 or under employs more than half of all of the women principals at work in these schools. Table XXI shows the percentage of women employed as principals in the different-sized cities. This table should be read thus: In cities of 2,500 or under, 43 per cent of the principals are women, etc. From these figures it would seem that the positions of larger responsibility as measured by the population of the city in which the high school is located are not filled by women. This may be due to the attitude of the women themselves or to the attitude of the communities.

TABLE XXI

	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Percentage women principals.....	43	31	16	16	12	5	3

*Sex of high-school teachers.*—The high schools in this territory have attracted women as teachers in far greater numbers than as principals. The exact extent of this is shown in Table XXII. This table becomes

TABLE XXII

Sex	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Male.....	71	274	220	215	241	524	406
Female.....	292	646	561	414	444	887	708
	363	920	781	629	685	1,411	1,114

clear when read as follows: Of the 363 teachers employed in cities of 2,500 or under, 71 are men and 392 are women; of the 922 teachers employed in towns of 2,501 to 5,000, 226 are men and 646 are women, etc.

Out of a total of 6,303 teachers, 69 per cent are women. However, differences are to be noted here also in connection with the larger percentage in the smaller cities as is shown by Table XXIII. This table should be read thus: In cities of 2,500 or less 80 per cent of the teachers are women, etc. Summarizing the data for sex distribution of superintendents, high-school principals, and high-school teachers it can be said that at present the women are rarely to be found in the field of supervision; that about one-fourth of the principalships chiefly in the smaller towns are filled by women; and that over two-thirds of the teaching positions are filled by women, although the proportion of women is considerably higher in the smaller than in the larger cities.

TABLE XXIII

	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
Percentage of women.....	80	70	71	66	65	62	63

*Salaries of superintendents in schools represented.*—Table XXIV shows the salaries paid to the superintendents of the schools distributed on a basis of population of cities concerned. In the 66 cities of 2,500 and under reporting on this item there is a wide variation. Three cities pay

TABLE XXIV

Total Salary of Superintendents	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
\$1,000.....					1		
\$1,001-\$1,100...	3						
1,101- 1,200...	6	3					
1,201- 1,300...	7	11	5				
1,301- 1,400...	10	14	3			1	
1,401- 1,500...	19	25	8	1	1		
1,501- 1,600...	8	29	12	2	2		
1,601- 1,700...	5	20	9	3	2		
1,701- 1,800...	2	15	29	13	2	1	
1,801- 1,900...		5	3	5			
1,901- 2,000...	3	8	16	19	13	5	
2,001- 2,100...		4	2	4	6	4	
2,101- 2,200...	1	2	4	5	8	11	
2,201- 2,300...	1			1	4	3	1
2,301- 2,400...				1	2	5	
2,401- 2,500...			2	4	3	14	
2,501- 2,600...			1		1	8	
2,601- 2,700...	1			1	4	6	
2,701- 2,800...		1	1		2	3	
2,801- 2,900...						1	
2,901- 3,000...		1		1	5	13	5
3,001- 3,200...						1	
3,201- 3,300...						6	1
3,301- 3,500...				2		2	4
3,501- 4,000...							4
4,001- 4,500...							3
4,501- 5,000...							11
5,001- 5,800...							2
5,801- 6,000...							16
6,001- 7,000...							5
7,001-10,000...							1
Median.....	66 \$1,500*	138 \$1,600	95 \$1,800	62 \$2,000	56 \$2,500	84 \$5,000	53

\*From \$1,401 to \$1,500, etc.

\$1,001 to \$1,100; six, \$1,101 to \$1,200; seven, \$1,201 to \$1,300; while one pays \$2,700. The same variation is found in the larger cities.

*Salaries of principals.*—Table XXV shows the salaries paid to the high-school principal, distributed on a basis of population of city concerned. (Data are lacking for Colorado.) In the 67 towns of 2,500 or under reporting on this item there is a wide variation. Four cities pay \$601 to \$650; three, \$651 to \$700; six, \$701 to \$750; while one pays \$2,000. The same variation is found in the larger cities.

TABLE XXV

Total Salary of Principals	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
\$ 600 .....						1	
\$ 601-\$ 650...	4			1			
651- 700...	3	7	2				
701- 750...	6	11	1				
751- 800...	16	13	5		1		
801- 850...	4	5	3				
851- 900...	7	18	7	2	1		
901- 950...	1	3	1				
951- 1,000...	5	19	12	1	2		
1,001- 1,050...		1	5	1			
1,051- 1,100...	2	13	14	8	3		1
1,101- 1,150...		1			1		
1,151- 1,200...	5	12	25	13	10	1	1
1,201- 1,250...			3	2	2		
1,251- 1,300...	1	4	7	12	7	1	
1,301- 1,400...	4	2	2	7	7	8	1
1,401- 1,500...	6	7	1	7	8	12	
1,501- 1,600...		7	2	2	5	13	2
1,601- 1,700...	2	7	3			5	
1,701- 1,800...	1	7	4	1	5	15	2
1,801- 1,900...		1		3	1	5	2
1,901- 2,000...	1	2	3		3	15	2
2,001- 2,100...				3		2	1
2,101- 2,200...		1	1	1		5	6
2,201- 2,300...			1		1	1	
2,301- 2,400...						1	3
2,401- 2,500...						5	3
2,501- 2,600...							1
2,601- 2,700...		1	1				
2,701- 2,800...							1
2,801- 2,900...							2
2,901- 3,000...			1			1	24
3,001- 3,500...				1		3	8
3,501- 4,000...			1				2
4,001- 4,500...							
4,501- 5,000...							
	67	142	105	63	57	94	62
Median .....	\$850*	\$1,000	\$1,100	\$1,300	\$1,400	\$1,800	\$3,000

\*From \$801 to \$850, etc.

Maximum salary of teachers.—Table XXVI shows the maximum salaries paid to the high-school teachers, distributed on a basis of population of cities concerned. (Data for Colorado are lacking.) In the 70 cities of 2,500 population or under there is a wide variation in maximum

TABLE XXVI

Total Maximum Salary	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
\$500			1				
\$501-\$550	2	3					
551-600	2	6	2		2		
601-650	10	13	8	1			
651-700	11	17	8	2			
701-750	13	35	11	3	5		
751-800	10	17	20	4	5	1	
801-850	7	14	10	8	2	1	
851-900	3	16	11	13	7	9	
901-950	1	5	3	5	1	7	
951-1,000	4	6	15	16	10	13	1
1,001-1,050			2			4	
1,051-1,100	1	3	6	3	8	7	2
1,101-1,150		1			1	3	
1,151-1,200	4	2	4	3	7	11	5
1,201-1,250	1	1	1	2	2	1	
1,251-1,300			1	3	2	11	2
1,301-1,400		1	1		3	11	6
1,401-1,500		2	1		2	7	9
1,501-1,600				3	1	1	7
1,601-1,700					2	2	1
1,701-1,800				1	1	4	7
1,801-1,900							3
1,901-2,000	1	1				2	9
2,001-2,100							5
2,101-2,200							3
2,201-2,300							2
2,301-2,400							1
2,401-2,500							1
2,501-2,600							
	70	143	100	67	61	95	64
Median salary...	\$750*	\$750	\$850	\$950	\$1,100	\$1,150	\$1,600

\* From \$701 to \$750, etc.

salary paid. Ten cities pay a maximum salary of \$501 to \$550; ten, \$551 to \$600; ten, \$601 to \$650; while one pays \$2,000. Similar variations are found in the larger cities. Of the cities of 50,000 or over the maximum varies from \$1,000 to \$2,500.

*Minimum salary of teachers.*—Table XXVII shows the minimum salary paid to the high-school teachers, distributed on the basis of cities concerned. (Data for Colorado are not included.)

In the 70 cities of 2,500 population and under, there is a wide variation in the minimum salary paid. Thirteen cities pay not less than

TABLE XXVII

Total Minimum Salary	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
\$ 300.....						1	
\$ 301-\$ 450.....		5					
451- 500....	13	11	4	4	1	2	1
501- 550....	21	24	18	6	4	4	
551- 600....	12	41	22	11	11	8	5
601- 650....	10	28	26	9	12	10	2
651- 700....	10	14	19	13	13	23	7
701- 750....	2	10	11	15	10	18	10
751- 800....	1	3	1	4	4	17	9
801- 850....	1	4			3	5	7
851- 900....		2	4	2	1	2	5
901- 950....				1	1		
951- 1,000....		2				2	11
1,001- 1,050....						1	
1,051- 1,100....							1
1,101- 1,200....			1				1
1,201- 1,300....		1					
Median salary...	70 \$600*	145 \$600	106 \$650	65 \$700	60 \$700	93 \$700	59 \$800

\*From \$551 to \$600, etc.

\$500; 21 pay not less than \$501 to \$550; 12 pay not less than \$551 to \$600; while one city pays not less than \$801 to \$850. The same variation is to be noted in the larger cities. For example, cities of 50,000 or over have a minimum salary as low as \$500 and as high as \$1,200.

A summary of the median salaries shown in the foregoing tables brings out the salary differences in a striking manner (Table XXVIII). This table should be read thus: In the cities of 2,500 or under, the

TABLE XXVIII

	CLASS OF CITY						
	A	B	C	D	E	F	G
Median salary of superintendent.....	\$1,500*	\$1,600	\$1,800	\$2,000	\$2,000	\$2,500	\$5,000
Median salary of high-school principals.....	850*	1,000	1,100	1,300	1,400	1,800	3,000
Median maximum salary of high-school teachers	750*	750	850	950	1,100	1,150	1,600
Median minimum salary of high-school teachers	600*	600	650	700	700	700	800

\*In the \$1,500 group, etc.

median salary of the superintendent is \$1,401 to \$1,500; the median salary of the high-school principal is \$801 to \$850; the median maximum salary of the high-school teacher is \$701 to \$750; the median minimum salary of the high-school teacher is \$551 to \$600, etc.

Comparison between the minimum and maximum salaries of the teachers and the high-school principals brings out the fact that there is less difference in the small cities than in the large cities. The small city offers fewer chances for a high salary reward in going from a minimum salary to a maximum salary. The median increase from minimum to maximum in the small city is only 20 per cent, while in the large city the increase is 100 per cent. The opportunity for a high salary in case of a change from a teaching position to a principalship or to a superintendency is likewise very much less in the small community. Despite the fact that the minimum salary of the large city is only slightly higher than in the small city, the teacher who goes to the large town has a very much better chance for promotion to higher salaries, either as teacher or as an executive. These facts no doubt contribute to the difference in experience and tenure which exists in the large cities and in the small cities. Increase in salary seems to be gained by a shift from small city to large city in each type of educational activity represented above, as there is a positive correlation with salary and size of town. It would be difficult to justify this procedure in view of the actual needs of the schools or the difficulty of the tasks. The small community has, within recent years, been buying the best in the way of school buildings and library equipment. It is possible that the difference in salaries could be so adjusted as to offer such inducements to the ambitious beginning teachers that they would not be constantly drawn off to the larger cities. Something might be said in favor of the French plan whereby the difference in salaries between the large and small community is supposed to be about enough to offset the differences in living expense, such as rentals and taxes.

*Total experience of the high-school teacher.*—The total experience of the high-school teachers in the best high schools in this territory is of significance on account of the fact that it is assumed that a teacher becomes proficient largely by experience. Therefore, it is important to know the extent of experience in order that we may know something of the amount of proficiency we have a right to expect.



TABLE XXIX

Total No. Years	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
1.....	72	172	135	117	84	192	91
2.....	84	153	122	77	75	114	56
3.....	61	121	84	78	66	131	52
4.....	57	102	89	62	69	122	83
5.....	36	64	65	48	60	121	74
6.....	8	79	58	33	48	98	59
7.....	17	54	62	40	41	84	65
8.....	23	45	30	21	36	80	54
9.....	17	28	42	30	29	59	45
10.....	14	44	36	24	28	60	52
11.....	10	28	33	15	24	44	46
12.....	10	36	21	16	5	27	30
13.....	7	20	22	11	11	36	38
14.....	4	15	21	12	15	29	42
15.....	7	24	13	15	19	27	37
16.....	9	17	14	8	10	20	25
17.....	2	11	7	9	7	14	32
18.....	7	9	14	10	11	24	28
19.....	2	16	7	5	1	10	15
20.....	2	16	9	10	12	18	21
21.....	3	13	8	4	9	8	18
22.....	.....	7	5	5	6	13	17
23.....	2	3	2	8	4	12	8
24.....	4	5	7	4	2	7	13
25.....	.....	5	3	5	7	10	14
26.....	.....	13	4	5	9	8	8
27.....	4	3	4	2	6	4	15
28.....	2	4	.....	1	1	7	5
29.....	.....	3	4	3	2	2	1
30.....	.....	.....	4	3	4	4	7
31.....	1	3	.....	4	2	2	7
32.....	.....	3	.....	1	1	5	4
33.....	.....	.....	2	.....	.....	5	7
34.....	.....	3	5	.....	.....	.....	5
35.....	.....	1	1	.....	1	4	5
36.....	.....	1	2	1	.....	2	9
37.....	.....	.....	1	2	.....	4	.....
38.....	1	1	1	.....	2	1	1
39.....	.....	1	.....	.....	1	2	2
40.....	.....	1	.....	.....	1	.....	1
41.....	.....	2	1	.....	.....	.....	5
43.....	.....	.....	2	1	.....	.....	1
47.....	.....	.....	.....	.....	.....	.....	1
49.....	.....	.....	.....	.....	.....	1	.....
50.....	.....	.....	.....	.....	.....	.....	1
52.....	.....	.....	.....	.....	.....	.....	1
56.....	.....	.....	.....	.....	.....	1	.....
	466	1,172	940	690	709	1,512	1,111

Table XXIX shows the distribution of the number of teachers in relation to the total number of years' experience in teaching (irrespective of the type of school in which experience was gained). This table should be read as follows: Of the 466 teachers in cities of 2,500 or under, 72 have had one year or less of experience; 84, two years of experience; 61, three years' experience, etc. These figures reveal the wide variation that exists in the matter of the total number of years of experience in teaching.

The immaturity and lack of wide experience is shown by the fact that 13 per cent of these teachers have had one year's experience; 20 per cent have had two years' experience or less; 29 per cent have had three years' experience or less.

TABLE XXX  
MEDIAN YEARS OF EXPERIENCE

	CLASS						
	A	B	C	D	E	F	G
Number . . . . .	466	1,172	940	690	709	1,572	1,111
Median years . . .	3+	4+	4+	4+	5+	5+	8+

Another way of looking at this same problem is shown in Table XXX. This table should be read as follows: Of the 466 teachers in cities of 2,500 or under, one-half have had three years' or less experience; half in the cities of 2,501 to 5,000 have had four years' or less experience, etc. The median experience ranges from three to eight years, the more experienced teachers being in the larger cities.

In view of the greater salary opportunities in the larger cities it is what we should expect. The cities which offer the greatest opportunity for promotion from minimum to maximum salaries are able to secure a group of teachers with a median experience about twice as large as that found in the smaller cities. It should be borne in mind that the superintendents in the smaller cities spend considerable of their time in teaching; consequently they are even less able to give adequate supervision for their relatively inexperienced teachers than are superintendents in the larger cities. This lack of supervision is even more serious in consideration of the fact that the communities employing the less experienced teachers necessarily employ a much larger proportion of teachers who are not fully given over to teaching as a profession than do communities employing teachers of much experience.

TABLE XXXI

Total	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
0.....	248	474	436	237	329	614	439
1.....	49	139	108	80	91	202	117
2.....	45	102	71	81	60	132	87
3.....	29	82	60	42	49	75	58
4.....	22	52	42	31	32	54	49
5.....	18	44	51	33	28	56	52
6.....	9	28	28	24	18	40	40
7.....	9	27	16	8	18	28	37
8.....	11	14	16	14	10	27	21
9.....	3	7	15	15	14	19	19
10.....	2	11	16	11	5	27	30
11.....	2	15	5	3	11	19	18
12.....	5	6	4	8	5	14	15
13.....	2	7	7	4	9	20	15
14.....	1	3	2	7	7	5	15
15.....	2	8	2	8	6	6	9
16.....	1	4	6	5	7	8	10
17.....		3	2	5	4	5	6
18.....	1	3	3	7	3	5	6
19.....	1	2	7	2	1	10	8
20.....		3	2	3	3	5	8
21.....		1		5	1	7	6
22.....		3	1	2	1	1	6
23.....				1	2	4	4
24.....		2	1	1	1	3	5
25.....				2		2	3
26.....					1	3	
27.....		1		1	1	2	2
28.....			2	1	1	3	
29.....		2			1	1	1
30.....				1	1	4	2
31.....		1		1		1	
32.....			2	1			1
33.....							1
34.....			1			1	
35.....				1			2
36.....							1
37.....							1
39.....						2	1
40.....							1
41.....				1			1
42.....							1
44.....				1			
47.....	1						
51.....			1				
Median.....	461 0	1,044 1	907 1	647 1	719 1	1,405 1	1,098 1

The small community is constantly serving as a practice school for the large communities. After a little experience in the small community

the more ambitious are attracted to the larger places. A part of the remainder change occupation, and a small part of the group remain in the small cities.

*Experience in high schools.*—It is not infrequently said that one of the difficulties which high-school teachers have in dealing with the problems of the high school is that the teachers are not familiar with the work which is done in the elementary school. Table XXXI shows the exact amount of experience which the high-school teachers have had in non-secondary schools. This table should be read as follows: Of the 461 teachers working in cities of 2,500 or under, 248 had no experience in non-secondary schools; 49 had one year's experience in non-secondary schools; 45 had two years' experience, etc. There were 44 per cent of the teachers who had no experience in other than high-school work; 56 per cent had one year or less experience in other than secondary schools. The median teacher in cities of 2,500 or under had no experience in a non-secondary school. The median teacher in cities of larger size has had one year experience in a non-secondary school. Certainly the superintendent and high-school principal cannot rely upon this as a means of furnishing information to the teachers in the high school of the work that has been done in the grades. This table points to the necessity of the high-school principal or the superintendent giving specific instruction to the high-school teachers in regard to the work in the lower grades. On the other hand, this table indicates that a teacher who expects to teach in the high school need feel no fear of failure of getting a position without experience in non-secondary schools. There is no well-defined demand for this experience in high schools of any type.

#### TRAINING OF TEACHERS

*Teachers who are not college graduates.*—The North Central Association has for years had a requirement that the teachers in approved schools should be college graduates or the "equivalent." The points of equivalency have not been standardized to any considerable degree. Very striking differences exist, however, in different schools in the proportion of the teaching staff who are presumably "equivalent" to college graduates. Table XXXII shows the complete distribution for 592 schools reporting on this item. This table becomes clear when read as follows: Of the 70 schools in cities of a population of 2,500 or under, 33 employ no teachers who are not college graduates; 10 employ 1

teacher who is not a college graduate; 17 employ 2 teachers who are not college graduates; 5 employ 3 such teachers; 1 employs 4 such teachers; 3 employ 5 such teachers; 1 employs 6 such teachers, etc. From this table it is seen that about three schools out of four employ one or more teachers who are not college graduates. However, differences between the small city and large city are very marked in this particular, almost

TABLE XXXII

No. Not Graduates	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	No. of Teachers
0.....	33	42	22	13	7	10	6	.....
1.....	10	43	31	15	10	8	3	120
2.....	17	28	23	13	16	12	8	234
3.....	5	16	11	14	13	12	4	225
4.....	1	5	6	5	2	12	2	132
5.....	3	3	4	.....	3	7	1	105
6.....	1	2	1	2	4	7	2	114
7.....	.....	.....	1	3	1	7	6	126
8.....	.....	2	3	.....	1	5	3	112
9.....	.....	1	.....	.....	.....	4	3	72
10.....	.....	.....	1	.....	1	3	5	100
11.....	.....	.....	.....	.....	1	.....	3	44
12.....	.....	.....	.....	1	.....	.....	3	48
13.....	.....	.....	.....	1	.....	.....	3	52
14.....	.....	.....	.....	.....	.....	.....	1	28
15.....	.....	.....	.....	.....	.....	.....	1	30
16.....	.....	.....	.....	.....	.....	.....	1	32
17.....	.....	.....	.....	.....	.....	1	.....	17
18.....	.....	.....	.....	.....	.....	1	.....	18
20.....	.....	.....	.....	.....	.....	1	.....	20
23.....	.....	.....	.....	.....	.....	.....	1	23
24.....	.....	.....	.....	.....	.....	.....	1	24
27.....	.....	.....	.....	.....	.....	.....	1	27
31.....	.....	.....	.....	.....	.....	.....	1	31
46.....	.....	.....	.....	.....	.....	.....	1	46
50.....	.....	.....	.....	.....	.....	.....	1	50
	70	142	103	67	59	90	61	1,776

half of the cities of 2,500 and under have no teachers who are not college graduates; while only one-tenth of the cities of 50,000 or over have no teachers who are not graduates of college. The fact that the large cities have teachers with much longer experience may mean that these teachers have been in the school system since the school was first placed on the list or it may mean that long experience in a good school system has come to stand for the "equivalent" of college graduation. It may be that the

small school feels a greater necessity for meeting the technical requirements of the Association in its every detail in an unquestioned manner than does the large school.

The 1,776 teachers who are reported as non-college graduates represent about one-fifth of the total number teaching in these schools. The great majority of these teachers are employed in the larger cities. Reference to the last column to the right indicates that some cities have as many as 50 teachers in their employ who are not graduates.

*Teachers who are graduates of college.*—Table XXXIII shows the distribution of the number of college graduates in the various high schools. The meaning of this table becomes clear when read as follows: Of the 72 cities with a population of 2,500 or under, one has 2 college graduates; 6 have 3 college graduates; 16 have 4 college graduates; 20 have 5 college graduates; 16 have 6 college graduates, etc. There are 6,491 college graduates reported as being employed in these schools.

The material found in this table in connection with that dealing with non-college graduates indicates the extent to which college graduation has become a standardized requirement for high-school teachers in the North Central territory. There seems to be only about one chance in five of a position being filled by a non-college graduate. For an inexperienced teacher the chance is probably very much less, so that it would seem safe to say that despite the fact that there are many non-graduates holding good positions the chance is very poor for a teacher who starts in today without being a college graduate.

*Professional and academic schooling of the teacher.*—The data showing the details of training for 7,045 teachers were distributed in order to find out the exact type and length of preparation made by the teachers. It was found that 1,040 of these teachers had received their education in normal school only; 5,109 in college and university only; and that 946 had taken a combined course in normal college or university.

Table XXXIV shows the number of years of training for the teachers who have done normal-school work only. This table should be read thus: In cities of 2,500 or under, 16 teachers were employed who had only one year of normal training; 29 with two years of normal training only; 7 with three years of normal training only; 26 with four years of normal training only; 4 with five years of normal training only. Reference to the right-hand column indicates that 187 of these teachers had

TABLE XXXIII

No.	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	No. of Teachers
2.....	1	4	1	.....	.....	.....	.....	12
3.....	6	7	3	1	1	.....	1	57
4.....	16	26	9	1	.....	.....	1	212
5.....	20	37	18	5	3	2	1	480
6.....	16	33	22	9	3	2	3	528
7.....	9	24	18	13	15	8	1	616
8.....	2	20	17	12	8	5	2	528
9.....	1	3	7	6	10	8	3	342
10.....	1	1	7	4	4	4	1	220
11.....	.....	2	4	5	5	5	2	253
12.....	.....	.....	2	3	9	11	.....	240
13.....	.....	1	2	4	3	3	2	195
14.....	.....	.....	.....	2	1	7	2	168
15.....	.....	.....	.....	2	1	5	.....	120
16.....	.....	.....	.....	1	.....	5	.....	96
17.....	.....	.....	.....	.....	2	1	.....	51
18.....	.....	.....	.....	.....	.....	5	1	108
19.....	.....	1	.....	.....	1	7	.....	171
20.....	.....	.....	.....	1	.....	4	5	200
21.....	.....	.....	.....	.....	.....	3	.....	63
22.....	.....	.....	.....	.....	.....	3	4	88
23.....	.....	.....	.....	.....	.....	1	.....	23
24.....	.....	.....	.....	.....	.....	.....	1	24
25.....	.....	.....	.....	.....	.....	2	1	75
26.....	.....	.....	.....	.....	.....	2	1	32
28.....	.....	.....	.....	.....	.....	1	3	112
29.....	.....	.....	.....	.....	.....	.....	3	87
30.....	.....	.....	.....	1	1	.....	3	150
31.....	.....	.....	.....	.....	.....	1	1	62
32.....	.....	.....	.....	.....	.....	.....	.....	32
33.....	.....	.....	.....	.....	.....	.....	1	33
34.....	.....	.....	.....	.....	.....	1	3	136
36.....	.....	.....	.....	.....	.....	1	1	72
39.....	.....	.....	.....	.....	.....	1	1	78
40.....	.....	.....	.....	.....	.....	.....	2	80
42.....	.....	.....	.....	.....	.....	.....	1	44
44.....	.....	.....	.....	.....	.....	.....	1	44
47.....	.....	.....	.....	.....	.....	1	1	94
48.....	.....	.....	.....	.....	.....	.....	2	96
49.....	.....	.....	.....	.....	.....	.....	1	49
50.....	.....	.....	.....	.....	.....	.....	1	50
51.....	.....	.....	.....	.....	.....	.....	1	51
53.....	.....	.....	.....	.....	.....	.....	1	53
58.....	.....	.....	.....	.....	.....	.....	1	58
60.....	.....	.....	.....	.....	.....	.....	1	60
68.....	.....	.....	.....	.....	.....	.....	1	68
	72	159	110	70	67	98	62	6,491

TABLE XXXIV  
NORMAL SCHOOL ONLY

Total Years in Normal	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total Number
1.....	16	18	22	25	35	32	39	187
2.....	29	61	51	31	65	75	34	386
3.....	7	32	35	20	26	39	27	256
4.....	26	51	28	6	27	32	14	184
5.....	4	7	3	2	1	2	2	21
6.....	.....	.....	.....	.....	1	.....	.....	1
7.....	.....	.....	.....	.....	.....	.....	5	5
	82	171	140	85	155	182	121	1,040

one year of normal training only; 386, two years only, etc. One striking fact that comes out clearly is that four-fifths of these people have studied less than four years in normal school.

Table XXXV shows the range of distribution for teachers who have received their training in college and university. Of the 382 teachers at work in cities of 2,500 or under, 17 had one year of college or university work alone; 36 had two years; 32, three years; 259, four years, etc. Reference to the right-hand column reveals the fact that 193 had one year only of college or university training; 985, or less than one-fifth, of these people have had less than a four-year course. On the other hand

TABLE XXXV  
COLLEGE OR UNIVERSITY ONLY

Total Years in University	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total Number
1.....	17	31	28	19	23	32	43	193
2.....	26	47	64	39	53	88	61	379
3.....	32	64	54	40	54	91	78	413
4.....	259	667	426	362	428	690	489	3,321
5.....	35	99	64	77	75	158	115	433
6.....	7	26	26	18	22	49	50	268
7.....	2	10	7	5	3	17	23	67
8.....	2	3	1	.....	2	1	11	20
9.....	2	2	1	.....	2	2	1	10
10.....	.....	.....	.....	.....	.....	.....	3	3
12.....	.....	1	.....	.....	.....	1	.....	1
	382	950	671	560	662	1,129	874	5,109



790, or almost one-sixth, of these people have had more than four years' training. The latter figure is an indication of the extent of advanced preparation.

Table XXXVI shows the distribution of the teachers who have had training both in normal and college or university courses. Of the 46 cities of 2,500 and under having teachers who have had a combined normal

TABLE XXXVI  
COMBINED NORMAL AND COLLEGE OR UNIVERSITY COURSE

TOTAL YEARS		UNDER 2,500	2,501 TO 5,000	5,001 TO 7,500	7,501 TO 10,000	10,001 TO 15,000	15,001 TO 50,000	50,001 AND OVER	TOTAL
Normal	College								
2 1...	1	.....	8	7	4	5	5	5	34
3 { 1...	2	1	7	10	4	4	14	11	52
3 { 2...	1	2	14	7	7	8	15	9	62
3 { 1...	3	1	7	5	4	5	9	6	37
4 { 2...	2	9	24	14	13	12	27	5	104
4 { 3...	1	1	10	5	7	10	12	4	49
4 { 1...	4	4	11	8	9	14	18	9	73
5 { 2...	3	4	9	6	5	9	10	10	53
5 { 3...	1	4	13	10	5	5	12	13	62
5 { 4...	1	5	12	11	7	4	7	8	54
6 { 1...	5	3	4	.....	3	3	7	5	25
6 { 2...	4	7	15	8	4	8	9	2	53
6 { 3...	3	1	11	2	4	6	11	6	51
6 { 4...	2	.....	6	8	5	11	16	9	55
6 { 5...	1	1	1	5	1	1	1	2	12
7 { 1...	6	.....	2	1	.....	2	.....	1	6
7 { 2...	5	1	1	2	.....	1	3	3	11
7 { 3...	4	.....	4	.....	6	3	6	2	22
7 { 4...	3	.....	9	5	2	7	12	10	45
8 { 6...	1	.....	.....	1	.....	.....	1	.....	2
8 { 5...	2	.....	1	.....	1	.....	1	1	4
8 { 1...	7	.....	2	.....	.....	.....	1	1	4
8 { 6...	2	.....	.....	.....	1	1	.....	2	4
8 { 2...	6	.....	.....	1	.....	1	.....	1	3
9 { 4...	4	1	7	6	3	3	5	6	31
9 { 3...	5	.....	2	.....	.....	1	.....	2	5
9 { 5...	3	1	1	1	.....	1	1	1	6
9 { 3...	6	.....	1	.....	.....	.....	.....	.....	1
10 { 2...	7	.....	.....	.....	.....	.....	.....	.....	.....
10 { 5...	4	.....	.....	.....	1	.....	.....	1	2
10 { 4...	5	.....	3	2	.....	.....	2	.....	7
10 { 6...	4	.....	1	.....	.....	.....	.....	.....	1
12 { 2...	8	.....	1	.....	.....	1	.....	.....	2
13 { 7...	5	.....	.....	.....	.....	.....	.....	1	1
14 { 4...	9	.....	.....	.....	.....	.....	.....	1	1
14 { 2...	12	.....	1	.....	.....	.....	.....	.....	.....
		46	188	125	94	127	195	137	936

and university course, 1 has gone to normal school only one year and to college two years; 2 to normal school two years and one year to college; 1 to normal school one year and three years to college; 9 to normal two years and to college two years; 1 went three years to normal and one year to college; 4 went one year to normal and four to college; 4 had two years in normal and three years in college; 4 had three years in normal and one year in college, etc.

Reference to the right-hand column indicates that almost 150, or about one-sixth, of these teachers have had less than four years of combined work in the normal and college or university course. On the other hand, 500, or over half, have had more than four years' combined preparation.

Table XXXVII shows the total distribution of the training of teachers in the different-sized cities. This table should be read as

TABLE XXXVII

	CLASS OF TOWN							
	A	B	C	D	E	F	G	Total
Normal only.....	82	171	140	85	155	182	121	1,040
College or university.....	382	950	671	560	662	1,129	874	5,059
Combined.....	46	188	125	94	127	195	137	936

follows: In cities of 2,500 or less, 82 of the teachers have had normal training only; 382, college or university training only; and 46 had a combined type of training. Reference to the right-hand column indicates that 1,041 were trained in the normal school; 5,059, in college or university, and 936, in normal and college or university.

In order to find out whether or not any striking differences are to be noted in regard to the selection of the different type of teachers in the different classes of cities, the percentages shown in Table XXXVIII have been calculated. This table should be read as follows: In towns of 2,500, 16 per cent of the teachers with any training at all have been trained in normal school only; 74 per cent in college or university only; and 10 per cent were trained in the two combined. It is to be noted that the range of difference is very slight in different-sized cities, for each type of training, which indicates that no particular type of city is given to the selection of a certain type of preparation. The college or univer-

sity is overwhelmingly predominant in the matter of the training of the teachers for high-school positions: 74 per cent of these teachers have had college or university training only; 13 per cent have had normal training only; and 13 per cent have had college and normal training combined, making a total of 87 per cent of these teachers who have come into contact with the college influence, and a total of 26 per cent of the teachers who have come into contact with the normal influence. These figures indicate that the college or university is chiefly responsible for the preparation of teachers for the high school. This certainly suggests that the college and university should take specific recognition of the fact that they are training the large majority of the teachers for the North Central high schools. School men should insist upon it that a part of this preparation should be along the lines calculated to be of specific value to the teacher in the high school.

TABLE XXXVIII  
PERCENTAGE TABLE OF ABOVE

	CLASS OF TOWN							
	A	B	C	D	E	F	G	Total
Normal only.....	16	14	16	12	16	12	10	13
College or university.....	74	72	71	75	70	74	76	74
Combined.....	10	14	13	13	14	14	14	13

The fact that the large majority of these teachers are trained in college is of importance in connection with the criticisms which are not infrequently made by college men. The teachers are largely what the colleges have made them. At least a part of the burden of responsibility for inefficiency on the part of the high-school teachers is chargeable to the college. One way of getting better results in high school will be to give more serious attention to the training of these teachers in college or university. The growing independence of the high school as an institution is surely safeguarded from the point of view of the university from the fact that the people in charge of the high schools are for the most part products of university training.

*Degrees of teachers.*—The North Central Association requires that all teachers be college graduates or the equivalent. Each teacher is required to furnish information as to the exact degree held and the name of the

institution from which the degree was received. Table XXXIX shows the different degrees reported and the total number of degrees held by the teachers in the schools. The variation in the degrees earned by these teachers is interesting. Of the twenty-six different degrees reported, over half of the Bachelor's degrees are in the department of arts. About one-eighth of the teachers hold Bachelor's degrees from the department

TABLE XXXIX

Degrees of Teachers	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over	Total
A.B.....	158	370	364	258	297	433	370	2,450
B.S.....	37	102	85	56	67	164	101	612
Ph.B.....	34	76	75	45	51	106	82	469
M.A.....	14	20	23	12	15	55	77	218
M.S.....		13	8	3	3	11	6	54
LL.B.....		1	2		3	1	6	12
B.A.....	44	48	55	31	31	45	106	360
B.L.....	5	8	7	3	2	20	23	68
Ph.D.....		9	4	2	2	5	17	39
Ph.M.....		2	2	2	1	1	1	9
B.D.....	2	10	5	3	23	6	7	55
A.M.....	7	28	30	30	40	52	66	323
Ph.C.....	1							1
LL.D.....							2	2
D.S.....		2			1			3
S.B.....	3	7	1	6	3	2	1	23
D.D.....		1						1
M.D.....		2	2		5	5	3	17
B.Ph.....	1	2		1	3	2	4	13
M.L.....		2			1		3	6
B.M.....		1	1	1		1	1	5
B.P.L.....			1		1			2
Ag.B.....	2		2					4
B.C.....		1			1		3	5
C.E.....							1	1
M.E.....		1						1
	308	706	667	453	550	909	879	4,856

of Science; one-ninth hold degrees in law or philosophy; one-eighth of the teachers hold Master's degrees, the large majority of which are in arts. Less than 1 per cent hold the degree of Doctor of Philosophy. The scattering degrees represent different amounts of work; e.g., B.D. represents quite generally only two years of collegiate work.

*Tenure.*—The length of time a teacher serves in a single position is an important item of administration. Table XL shows the distribution

of terms for 6,617 teachers. This table should be read thus: In cities of 2,500 or under, 230 teachers were serving their first year; 117, their

TABLE XL

Total No. Years	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
1.....	238	472	337	236	260	509	297
2.....	117	239	208	154	138	246	135
3.....	42	147	117	98	92	183	120
4.....	27	73	76	47	64	132	76
5.....	21	58	38	33	44	62	49
6.....	12	37	29	26	22	60	59
7.....	7	40	29	21	16	46	50
8.....	5	26	15	13	22	38	32
9.....	3	17	18	9	10	19	40
10.....	4	8	7	14	11	29	57
11.....	4	7	4	7	8	9	25
12.....	1	4	7	6	7	21	24
13.....	1	4	6	4	6	21	22
14.....	1	6	7	3	5	9	18
15.....	.....	9	8	4	4	13	20
16.....	1	1	3	3	4	9	13
17.....	.....	.....	5	3	6	7	8
18.....	2	2	2	5	3	8	9
19.....	.....	3	1	1	2	3	8
20.....	1	1	2	3	4	3	11
21.....	.....	4	1	3	2	2	6
22.....	.....	1	1	2	1	5	5
23.....	.....	.....	.....	1	3	5	5
24.....	.....	.....	.....	3	.....	4	2
25.....	.....	2	2	1	3	7	9
26.....	1	.....	2	.....	1	4	6
27.....	.....	.....	1	.....	.....	.....	3
28.....	1	.....	.....	1	.....	1	1
29.....	.....	4	.....	.....	1	2	8
30.....	.....	.....	1	.....	2	4	4
31.....	.....	2	.....	1	.....	1	3
32.....	.....	.....	.....	.....	.....	.....	3
33.....	.....	.....	1	.....	1	1	.....
34.....	.....	.....	1	.....	.....	.....	.....
35.....	.....	.....	.....	.....	.....	3	2
36.....	.....	.....	1	.....	.....	1	.....
38.....	.....	.....	.....	.....	.....	.....	1
40.....	.....	.....	.....	.....	.....	.....	1
41.....	.....	.....	1	.....	.....	.....	.....
	489	1,167	929	702	742	1,456	1,132

second year, etc. The range of service varied from less than 1 year to 41 years. However, the tenure of a majority of teachers was relatively short. Over one-third of all the teachers were serving their first year.

Certain differences were found in cities of different size. About one-half of the teachers in cities of 2,500 or less were serving in their first year; two-fifths in towns of 2,500 to 5,000; one-third in cities of 5,000 to 7,500; one-fourth in cities of 50,000 or over. The median tenure for cities below 50,000 was one to two years and in cities above 50,000, four years. In consideration of the facts brought out earlier in the study that the large cities pay larger salaries and have more experienced teachers, we should have no reason to be surprised at the longer tenure. The various forces combine in making greater stability of the teaching population. We know little of the real significance of the rapid shift in the teaching population; but surely the cities with an inexperienced, poorly paid, and rapidly shifting teaching population are contending with a serious problem.

#### SUMMARY

One value of such a presentation of facts concerning the administration of high schools is that it affords a simple means of comparison whereby any school may be ranked in reference to the administrative features considered. The numerous distribution tables and medians furnish a basis for ready reference which should enable school authorities to make an intelligent survey of conditions in high schools as to size, organization, and instructional staff. The following tabulated summary of medians should be helpful in this connection.

Table XLI should be read thus: In the 74 cities of class A (in terms of medians) the high-school enrolment is 109, there are 20 students per teacher, there are 23 recitations per day, two of which are taught by the superintendent, whose salary is from \$1,401 to \$1,500. The principal receives from \$801 to \$850. The maximum salary is from \$701 to \$750; the minimum salary is from \$551 to \$600. The teacher in this school has had three years' experience.

*Generalizations.*—There is wide variation from state to state in the number of schools conforming to the standards of the North Central Association; in the size of cities maintaining such schools, in the enrolment of the high schools and in the number of teachers teaching in these schools.

There is wide variation from small to large cities in the number of recitations offered in the school; in the number of recitations taught by

the superintendent; in the number of recitations taught by the teacher; in the length of the recitation period; in the length of the school year; in the size of classes; in the salaries; in the experience; in the tenure; in the sex of teachers and principals; and in the proportion of non-graduates.

TABLE XLI  
TABULATED SUMMARY OF MEDIANS

	CLASS OF TOWNS						
	A	B	C	D	E	F	G
	Under 2,500	2,501 to 5,000	5,001 to 7,500	7,501 to 10,000	10,001 to 15,000	15,001 to 50,000	50,001 and Over
1. No. towns.....	74	162	111	69	67	101	73
2. Median enrolment.....	109	162	175	243	250	450	841
3. Median number students per teacher.....	20	20	20	20	20	20	25
4. Median number recitations	23	29	34	47	49	70	107
5. No. classes taught by super- intendent.....	2	2	1	0	0	0	0
6. Salary of superintendent...	\$1,500*	\$1,600	\$1,800	\$2,000	\$2,000	\$2,500	\$5,000
7. Salary of principal.....	\$ 850*	\$1,000	\$1,100	\$1,300	\$1,400	\$1,800	\$3,000
8. Maximum salary of teachers	\$ 750*	\$ 750	\$ 850	\$ 950	\$1,100	\$1,150	\$1,600
9. Minimum salary of teachers	\$ 600*	\$ 600	\$ 650	\$ 700	\$ 700	\$ 500	\$ 800
10. Years' experience teaching .	3	4	4	4	5	5	8
11. Median tenure.....	1	2	2	2	2	2	4

\* In the \$1,500 group, etc.

Although the median high-school enrolment increases as population increases, it does not increase in the same ratio. Small high schools are found in cities of every class. In the same way it can be said that the number of teachers increases with the enrolment, yet the correlation is not perfect. Eleven- or twelve-teacher schools vary in enrolment from less than 100 to more than 450. The median ratio of 20 students per teacher seems to have become a standard in cities with a population of less than 50,000. The same overlapping is to be noted in the number of recitations taught in each school. Schools offering 21 to 25 recitations per day are found in cities of every class, despite the fact that there is a median increase in the number of recitations as the population increases. The percentage of superintendents who teach decreases from 91 per cent

in the small cities to 13 per cent in the cities with a population of 50,000 or over. The recitation period tends to be longer in the larger cities although the overlapping is such that small cities have long recitations and vice versa. The large cities show a larger proportion of classes with more than 30 pupils. Practically all of the superintendencies are filled by men, although women are represented in cities of almost every class. Women are filling almost one-fifth of the principalships, but the percentage decreases from 43 per cent in the small cities to 3 per cent in the cities of 50,000 or over. Women are filling 69 per cent of the teaching positions, but the percentage decreases from 80 per cent in the small cities to 63 per cent in the cities of 50,000 or over. The salaries for each class of worker increase from small to large cities, the increase being least for minimum salaries and greatest for superintendents. The median experience of teachers increases from 3 years in the small city to 8 years in the city of 50,000 or over. There seems to be no difference in the amount of experience these teachers have had in the elementary schools. About one-fifth of the teachers are not college graduates. The small cities, however, employ relatively few of them. About one-eighth of the teachers receive their training in the normal school alone, and about one-eighth receive their training in normal and college combined. The rest receive such training as they have in college or university. No difference in this particular is noticeable in the towns of different size. One-half of the holders of Bachelor degrees have the degrees in arts. One-eighth of the teachers holding degrees hold the Master's degree. One-third of all of the teachers were serving their first year. The median tenure for cities below 50,000 was one to two years—for cities above 50,000, four years.

The small high schools vary less from the standards of the Association than do the large high schools.

*Suggested conclusions*—The obvious conclusion from this array of facts is that the standards set up by definition are not carried out in practice. No group of men, no matter how intelligent they may be, can by the pooling of opinions agree upon a list of standards that will serve equally well all high schools. All high schools cannot be made to conform to a list of a priori standards for the reason that there are other determining forces, both within and without the given school. As a rule, conditions found in a given school are a rough portrayal of the educational sentiment of the community. Generally speaking, good schools



are found in good communities. On the other hand, the condition of a given school is not necessarily an index of what the community can do for the school. Because this is true the inspectors in this Association are doing missionary work of a high order when they stimulate lethargic or backward cities to higher standards.

Because of the insistence of the democratic demand that there must be equal educational opportunities for all, small communities are taxing themselves heavily to provide as good schools as are supported by larger communities. These more or less theoretical considerations may account for the fact that small schools are meeting the North Central standards in large numbers.

One of the least valuable and yet most interesting parts of this investigation deals with the distribution of teachers as to sex on three teaching levels, viz., superintendencies, principalships, and teaching positions. The proportionate number of women engaged in education decreases in the direction of the more purely executive positions. The fact that we now find them in large numbers in the high-school principalships and fairly represented in the superintendencies may be prophetic of the future.

From the foregoing data a high-school teacher, principal, or superintendent may easily determine his expectancy as expressed in salary. He can tell whether he receives more or less than the median salary. Of course, there is a fallacy in all such expectancy tables. A particular teacher or principal may be receiving all or more than he is worth and still be in the poorest paid one-third of his class. An insurance actuary, if asked by someone, "What is my expectancy in life?" should reply, "I don't know what *your* expectancy is. It may be two months or forty years. But the expectancy of men of your age is so much." Similarly no individual teacher can determine with any certainty what *his* expectancy is. He can only determine with a fair degree of accuracy what the expectancy is for teachers of his training, experience, habits, and the like. In spite of these limitations, salary tables in cities of a given size do furnish a better basis than none for determining the actual and probable incomes of superintendents or teachers.

The salary tables show that there is a direct correlation between the salary paid and the size of the place, and that the variability and range is greater in large places than in small places. This condition is responsible for much of the shifting of the teaching population from position

to position. The greater money rewards are found in the larger places. Frequently the only way for a teacher to be rewarded, i.e., to get an increase in salary, is to move. It is a misfortune that many communities let the competent go with the incompetent. Communities need to be stimulated to pay good teachers higher salaries so as to insure greater stability of location among teachers. A campaign should be inaugurated for this purpose.

There are no tables in this report of more significance than those showing the experience of teachers. They show that there is little permanency in the teaching corps. With enough vacancies occurring in three or four years to equal the total number of high-school teachers, the school superintendent confronts a constantly recurring problem, that of training the recruits in the methods of schoolroom procedure. This problem is accentuated by the fact that one-half of the high-school recruits are inexperienced, for these data show that the inexperienced teacher stands an even chance of getting his initial experience in a high school. Moreover, there is no good reason to believe that the successful elementary experience of the others is a sure indication of success in the high school. A closer articulation of the two divisions of the schools is not being secured by advancing grade teachers to high-school positions. The task of providing adequately trained people for high-school teaching positions plainly rests with higher educational institutions. Colleges and university schools of education and departments of education are an expression of the desire of the public in regard to this matter. But until the rewards are greater and aroused public consciousness insists upon the employment of only those who are adequately trained, results will be far from satisfactory. One high-school teacher out of every five is not a college graduate. Three high schools out of every four employ one or more undergraduates, in spite of the standards set up by the North Central Association.

This discussion of the results of this investigation may be summarized as follows:

1. Standards determined by definition are not uniformly applied in practice.

2. The problem of administering a system of schools varies in complexity according to the size of the community, the enrolment of the school, the size of the classes, the number of classes, and the character of the teacher.

3. The number of recitations and the potential flexibility of the curriculum and variety of appeals afforded in a given type of schools increases in direct ratio to the size of the community represented.

4. Feminization increases as the amount of executive work decreases.

5. Expectancy as expressed in salaries and tenure increases with the size of the place.

6. Professionalization in teaching rests at present with the more experienced teachers in the larger places.

~~SECRET~~ ~~SECRET~~ : ~~SECRET~~ ~~SECRET~~ ~~SECRET~~

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1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific information required.

# SECRET

THE UNITED STATES OF AMERICA : DEPT. OF JUSTICE : DIVISION OF INVESTIGATION :  
WASHINGTON : U. S. GOVERNMENT PRINTING OFFICE : 1964

## INDEX

1. REPORT - H-115 - THE STATE OF NEW YORK IN 1960  
2. REPORT - H-115 - THE STATE OF NEW YORK IN 1960

[illegible]

THESE DOCUMENTS ARE TO REMAIN IN THIS OFFICE, TO BE OPENED, ONLY  
IN CASE OF EMERGENCY

THE ASSOCIATION HEREBY REQUESTS THAT THE PUBLICATIONS OF THE SOCIETY, AND ANY OTHER DOCUMENTS THAT MAY BE SUBMITTED TO THE ASSOCIATION, BE KEPT IN THE ASSOCIATION'S OFFICE, OR TO VOTE, AND A COPY OF THE SAME.

Sec. 2. ~~Members~~ ~~Members~~ shall be entitled to all the privileges of active members with the exception of voting and holding office, and shall be exempt from the payment of dues.

A person may be admitted to honorary membership by vote of the Society or nominated and by the Executive Committee.

12. 4. The names of the active and honorary members shall be printed in the Yearbook.

Art. 7. The ~~annual~~ dues for active members shall be \$2.00 and for asso-  
ciate members \$1.00.

## ARTICLE IV

*Officers and Committees.*—SECTION I. The officers of this Society shall be a president, a vice-president, a secretary-treasurer, an Executive Committee, and a Board of Trustees.

**SEC. 2.** The Executive Committee shall consist of the president and four other members of the Society.

SEC. 3. The president, vice-president, and secretary-treasurer shall serve for a term of one year. The other members of the Executive Committee shall serve for four years, one to be elected by the Society each year.

SEC. 4. The Executive Committee shall have general charge of the work of the Society, shall appoint the secretary-treasurer, and may, at its discretion, appoint an editor of the *Yearbook*.

SEC. 5. A Board of Trustees consisting of three members shall be elected by the Society for a term of three years, one to be elected each year.

The Board of Trustees shall be the custodian of the property of the Society, shall have power to make contracts, and shall audit all accounts of the Society, and make an annual financial report.

SEC. 6. The method of electing officers shall be determined by the Society.

## ARTICLE V

*Publications.*—The Society shall publish *The Yearbook of the National Society for the Study of Education* and such supplements as the Executive Committee may provide for.

## ARTICLE VI

*Meetings.*—The Society shall hold its annual meetings at the time and place of the Department of Superintendence of the National Education Association. Other meetings may be held when authorized by the Society or by the Executive Committee.

## ARTICLE VII

*Amendments.*—This constitution may be amended at any annual meeting by a vote of two-thirds of voting members present.

REPORT OF THE COMMISSIONERS OF THE  
LAND OFFICE IN RESPONSE TO A RESOLUTION OF THE  
HOUSE OF REPRESENTATIVES PASSED MAY 1, 1890

The report was made to the Senate on the 14th of January 1891. It contains a full and complete statement of the progress of the work of the Land Office during the year ending on the 31st of December 1890. It also contains a statement of the condition of the public lands at the close of the year.

The report is divided into two parts. The first part contains a statement of the progress of the work of the Land Office during the year ending on the 31st of December 1890. The second part contains a statement of the condition of the public lands at the close of the year. The first part is divided into three sections. The first section contains a statement of the progress of the work of the Land Office during the year ending on the 31st of December 1890. The second section contains a statement of the progress of the work of the Land Office during the year ending on the 31st of December 1890. The third section contains a statement of the progress of the work of the Land Office during the year ending on the 31st of December 1890.

The second part of the report contains a statement of the condition of the public lands at the close of the year. It is divided into three sections. The first section contains a statement of the condition of the public lands at the close of the year. The second section contains a statement of the condition of the public lands at the close of the year. The third section contains a statement of the condition of the public lands at the close of the year.

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WILLIAM H. HARRIS, Commissioner  
J. HENRY HARRIS, Secretary

# FINANCIAL REPORT OF THE SECRETARY-TREASURER OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

JANUARY 1, 1913, TO DECEMBER 31, 1913

## RECEIPTS FOR 1913

Balance on hand December 31, 1912.....		\$812.29
From sale of <i>Yearbooks</i> by University of Chicago Press:		
June to December, 1912.....	\$338.22	
January to June, 1913.....	457.82	
	<hr/>	\$796.04
Interest on savings' bank account:		
To January 1, 1913.....	6.77	
To July 1, 1913.....	7.13	
	<hr/>	\$ 13.90
Dues from members (current and delinquent):		
Active.....	279.20	
Associate.....	79.20	
	<hr/>	\$358.40
Total income for the year.....		<hr/> \$1,168.34
Total receipts including initial balance.....		\$1,980.63

## EXPENDITURES FOR 1913

### *Publishing and distributing two "Yearbooks":*

Printing <i>Twelfth Yearbook</i> , Part I ("Supervision of City Schools").....	\$338.38	
Printing <i>Twelfth Yearbook</i> , Part II ("Supervision of Rural Schools").....	351.20	
Distributing <i>Yearbook</i> .....	2.28	
Inserts and Circulars about Membership and <i>Yearbooks</i> ...	12.25	
Stenographic work on Part I of <i>Yearbook</i> .....	25.00	
Copyright fee.....	2.27	
	<hr/>	
Total cost of <i>Yearbooks</i> .....		\$731.38

<i>Brought forward</i> .....		\$731.3
<i>Secretary's office:</i>		
Secretary's salary from end of St. Louis meeting, February, 1912, to end of Philadelphia meeting, February, 1913...	\$100.00	
Secretary's traveling and hotel expenses for Philadelphia meeting.....	87.20	
Typewriting.....	21.35	
Stationery.....	10.45	
Stamps.....	17.47	
Expressage.....	.60	
Exchange.....	4.70	
	<hr/>	
Total for Secretary's office.....		\$241.77
		<hr/>
Total expenses.....		\$973.15

## SUMMARY

Total expenditures for 1913 .....	\$ 973.15
Balance on hand December 23, 1913.....	1,007.4
	<hr/>
Total.....	\$1,980.65

## MEMBERSHIP

Number of active members (including one honorary) December 23, 1913	149
Number of associate members December 23, 1913.....	83
	<hr/>
Total membership.....	232

S. CHESTER PARKER, *Secretary-Treasurer*

The accounts of the Society were audited for the year 1912 by Messrs. Holmes and Felmley of the Board of Trustees and found to be correct.



# **LIST OF HONORARY AND ACTIVE MEMBERS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION**

## **HONORARY MEMBER**

**Dewey, John, Columbia University, New York, N.Y.**

## **ACTIVE MEMBERS**

**Allen, Fiske, State Normal School, Charleston, Ill.**  
**Axline, Howard E., West Technical High School, Cleveland, Ohio.**  
**Bagley, William C., University of Illinois, Urbana, Ill.**  
**Baldwin, Bird T., Swarthmore College, Swarthmore, Pa.**  
**Becker, Ernest J., Eastern High School, Baltimore, Md.**  
**Benedict, Ezra W., Walden, Orange Co., N.Y.**  
**Blaine, Mrs. Anita McCormick, 101 East Erie St., Chicago, Ill.**  
**Bolton, Frederick E., State University, Seattle, Wash.**  
**Boyer, Charles, Superintendent of Schools, Atlantic City, N.J.**  
**Bradford, Mrs. Mary D., Superintendent of Schools, Kenosha, Wis.**  
**Bricker, Garland A., Ohio State University, Columbus, Ohio.**  
**Brooks, E. C., Trinity College, Durham, N.C.**  
**Brooks, Sarah C., 9 Crescent Ave., Newton Center, Mass.**  
**Brooks, Stratton D., State University, Norman, Okla.**  
**Brown, John F., 559 West 156th St., New York, N.Y.**  
**Brown, J. Stanley, Superintendent Township High School, Joliet, Ill.**  
**Brumbaugh, Martin G., Superintendent of Schools, Philadelphia, Pa.**  
**Bryan, W. J. S., 6102 Waterman Ave., St. Louis, Mo.**  
**Buchner, Edward F., Johns Hopkins University, Baltimore, Md.**  
**Burnham, Ernest, State Normal School, Kalamazoo, Mich.**  
**Burruss, Julian A., State Normal and Industrial School for Women, Harrisonburg, Va.**  
**Call, Arthur Deerin, 612 Colorado Bldg., Washington, D.C.**  
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THE  
THIRTEENTH YEARBOOK  
OF THE  
NATIONAL SOCIETY FOR THE STUDY  
OF EDUCATION

PART II  
PLANS FOR ORGANIZING SCHOOL SURVEYS  
WITH A SUMMARY OF TYPICAL SCHOOL SURVEYS

BY

H. L. SMITH

*Superintendent of Schools, Bloomington, Indiana*

AND

CHARLES H. JUDD

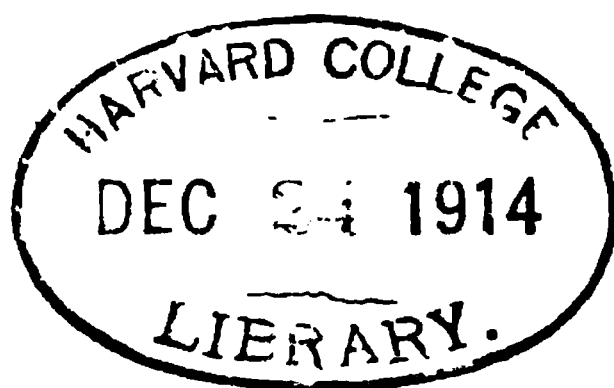
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*Edited by S. CHESTER PARKER, Secretary*

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# PLANS FOR ORGANIZING SCHOOL SURVEYS

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H. L. SMITH

Superintendent of Schools, Bloomington, Indiana

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## INTRODUCTION

In preparing the following paper, I have secured many suggestions from the publications of the National Bureau of Education, from the many excellent annual school reports and school surveys that have been published during the past three or four years, and from several individuals who were kind enough to share a part of their time with me in personal interviews on the subject under discussion. Of the school reports, I wish to mention especially the recent ones from the following cities: Cleveland, Ohio; Elmira, New York; Louisville, Kentucky; Newton, Massachusetts; New York, New York.

The following recently published school surveys are typical of those that have been suggestive in the making of the outlines of things that can profitably be done in school surveys: Baltimore, Maryland; Boise, Idaho; Hamilton, Ohio; Newburgh, New York; New York City—particularly the Interim Report by F. C. Howe and F. J. Goodnow; Portland, Oregon.

For personal suggestions I am indebted to Professors S. C. Parker, J. F. Bobbitt, M. E. Haggerty, and G. D. Strayer. To Professors Strayer and Parker I am especially indebted for valuable criticisms touching the points to be included, their final organization, and the phraseology of certain portions of the paper.

## GENERAL PRINCIPLES

Underlying the preparation of this paper there are three controlling purposes: first, that of reviewing briefly some of the present pressures urging careful study of local school situations; secondly, that of indicating the forces that can most safely and profitably be intrusted with making local surveys of school conditions, and finally, that of suggesting a possible method of approach to the problem of making an educational survey in cities of from five to fifty thousand inhabitants.

Education is no longer the simple process that it once was. From haphazard imitation a progressive step was made long ago toward conscious effort to teach in a systematic way. Ultimately this tendency crystallized among the favored classes into the practice of having a single individual teach a single child one subject at a time. From the demand that a single child be taught a single subject by a single individual we have progressed to the point where children in large groups must be taught, not simply a single subject, but the three R's, and not simply the three R's, but many additional subjects also. Modern education, too, is no longer limited to the intellectual field, but extends into the physical and the moral as well. Besides all this, the present-day school system is called upon to educate, not simply the children of from six to fourteen years of age, as formerly, but kindergarten children, youths, and adults, also. Moreover, these kindergarten children, youths, and adults are to be trained, not simply that they may make a better living for themselves and that they may also serve in the maintenance of the best that has been experienced thus far by the race, but, further, that they may make actual contributions to the knowledge that the race already possesses. With this increase in the scope of the things to be taught, in the variety of individuals to be taught, and in the purposes behind the teaching, the element of complexity has developed to such an extent that thorough organization has become essential. Devices are needed to aid the mind in grasping the situation, and in focusing the attention of educators on individual parts of the school system while they at the same time carry in mind the idea of the whole.

So rapidly has this complexity been forced upon us that we sometimes feel lost in the maze of it and realize the inadequacy of the organization that has been thus far developed to meet it. The need of a careful examination of our product to see whether it meets expectations or not continually forces itself upon our attention. A further problem is at present formulating itself, and that is the desirability of an examination to determine whether we are teaching the things actually needed by pupils in the public schools.

In order to aid in the intelligent solution of these two problems the survey has recently been called into service—the educational survey to reveal just what we are doing with the children we are working upon and just what the conditions are under which we are working, and a more general survey including social, mercantile, and industrial surveys, to

determine whether we are giving an education that the local situations justify.

In order to determine with reasonable accuracy just the things that are essential in the education of the people of any community, a social survey is necessary. The more complete such a survey is, the better it furnishes a setting or a background upon which to make the educational survey.

Without such a survey unintelligent conclusions might readily be drawn from the educational survey of actual conditions in the schools of the community. For this reason it is desirable, if possible, to make a preliminary but comprehensive social survey comparable to those made in Pittsburgh, Pennsylvania, Springfield, Illinois, and Syracuse and Newburgh, New York, including a study of health conservation and sanitation, housing conditions, betterment agencies of the city, foreign population, juvenile and adult delinquency, civic improvement, labor conditions, municipal accounting, public finance, local taxation, vital statistics, playground equipment and needs, occupations for youths and adults. Ultimately such a detailed survey will be necessary in order to provide adequately for the various interests of the total social group. Our democratic ideals drive us finally to such a survey. But where such an elaborate collection of data cannot be adequately made and interpreted it is well to begin with a less extensive plan. A survey much less pretentious could profitably be made which would aid greatly in interpreting the adequacy of educational facilities.

The following extract from Carol Aronovinci's *Knowing One's Own Community* is suggestive in connection with the scope and the starting of a general survey.

#### STARTING A SURVEY

A survey, like any other civic activity involving a conscious effort on the part of a group of citizens, must be started by some particular civic or philanthropic agency, some body of men or women interested in the welfare of the people whose intentions cannot be questioned and whose integrity, good judgment, moral and political standing are beyond reproach. Most small cities and towns have a Charity Organization Society, a Young Men's Christian Association, a Board of Trade, a Business Men's Association, a Grange, a large Women's Club, a University Club, or some other similar organization or agency which is backed by prominent men or women or both. The person or persons interested in making a survey should select the most prominent, the most

respected, and if possible the best financed organization in the community to back the work. The main conditions to be observed in selecting the organization should be as far as possible a complete absence of sectarian affiliations, political color, or special industrial or public-service interests.

When the organization has been decided upon, a carefully selected special committee of persons from various walks of life should be appointed with instructions to plan and organize the survey under the auspices of that organization. This committee should not be so large as to be unwieldy, nor so small as to be in danger of being one-sided or not representative of the best elements in the organization. A committee of ten persons in localities under ten thousand population and of fifteen to twenty in localities over ten thousand with special subcommittees would probably prove most efficient.

#### SCOPE OF SURVEY

A survey should cover as far as possible every phase of community life, advantageous and disadvantageous, that time and available energy can secure, but if selection of specific problems is made either for the purpose of beginning the work or because of limitations of time and working force, the lines of investigation selected should be practical, should have in view improvements affecting as many people as possible, should be easily understood by the masses, and should be measurable in commonly accepted quantities. If the supply of milk is bad an investigation into the sources of milk and the passage of proper regulations for the control of the milk supply will soon show results that can be measured in terms of a material reduction in the infant mortality and morbidity. If the schools are spending large amounts of money with meager results, an investigation into the accounting system of the school department, a study of the physical conditions of the children, and visits to the homes of backward and truant pupils will soon reveal the cause of the inefficiency in terms which can be easily understood and almost as easily remedied.

Stated in brief, a survey must follow lines which are of a practical character and must have in view tangible improvements which are easily understood and most generally desired.

#### OUTLINES FOR SOCIAL SURVEY

A fairly adequate social survey is illustrated by that being made at present by the high-school and departmental grade teachers of Bloomington, Indiana. The following outlines for gathering the data desired have just been agreed upon by the committee appointed by the high-school teachers for drawing up a plan.



MERCANTILE SURVEY OF BLOOMINGTON

STATUS OF FIRM

- 1. Firm name.....
- 2. Location.....
- 3. Mercantile pursuit.....
- 4. Commodities:
  - a) Main line.....
  - b) Side line.....
- 5. Character of firm (*partnership, corporation, co-operative, profit-sharing*).....
- 6. Amount of capital.....
- 7. Number of stockholders.....
- 8. Are stockholders resident or non-resident?.....

STATUS OF EMPLOYEES

- 1. Welfare activities in behalf of employees.....
- 2. To what extent are employees stockholders?..... Profit-sharers?.....
- 3. Special privileges extended to employees.....
- 4. Are vacations granted on the firm's time?.....
- 5. Promotions:
  - a) What factors determine?.....
  - b) How frequent?.....
  - c) Grades—e.g., are managers and departmental heads chosen from lower grades?.....
- 6. Desirable age for beginners.....

FIRM'S ATTITUDE TOWARD SCHOOL TRAINING OF EMPLOYEES

- 1. How may the public schools prepare employees more efficiently?.....



Birthplace of mother.....  
 Male children, ages.....  
 Female children, ages.....  
 Number of cases of illness during past year.....Parents.....Children.....  
 Character of illness.....Length of illness.....  
 Length of residence of family in Bloomington.....  
 Number of different school corporations family has lived in.....  
 Grade in which father left school.....  
 Grade in which mother left school.....  
 Male children who have left school, left in what grades?.....  
     Reason for leaving.....  
 Female children who have left school, left in what grades?.....  
     Reason for leaving.....

**HOUSING:**

*\*Kind of house*.....  
*Condition, inside*.....*Outside*.....  
 Number of families in building.....  
 Number of rooms.....*Size*.....  
 Number of sleeping-rooms.....  
*Window provision ample?*.....  
 Number of dark rooms.....  
 Cellar.....Sewer connections.....Cesspool.....Plumbing.....  
 Water supply, well.....Cistern.....City service.....  
 Toilet, inside.....*Outside*.....  
 Lighting.....Method of garbage disposal.....  
*Front yard*.....*Back yard*.....  
 Cooking done at home.....  
 Heating: Stove.....Furnace.....Hot water.....Steam.....  
*Furniture, quality of*.....*Ample*.....  
 House owned.....How purchased?.....  
 Mortgage.....Lodgers or boarders.....  
 Bathing facilities.....  
*General cleanliness and order*.....  
*General condition of streets and alleys adjoining property*.....

**INCOME:**

Earnings of father, weekly.....monthly.....yearly.....  
 Earnings of mother, weekly.....monthly.....yearly.....  
 Earnings of children separately.....  
 Income from other sources.....Total income.....

**SAVINGS:**

Bank deposits.....Trust company deposits.....  
 Building and Loan Associations.....Postal.....  
 Life insurance.....  
 Property insurance.....Chattel loans.....Rate.....  
 Purchase on instalment.....

\* The italicized questions are not to be asked, but are to be filled out by surveyor.

EXPENSES:

Rent.....Clothing.....Food.....Fuel.....Lighting.....  
Recreation and amusement.....Travel.....Taxes.....  
Dues and contributions.....Other items.....  
City water.....

INDUSTRIAL STATUS:

Occupation of father, hours.....Day or night labor.....  
Occupation of mother, hours.....Day or night labor.....  
Occupation of children that work, hours.....Day or night labor.....  
Occupation of relatives living with family, hours.....Day or night labor.....

SOCIAL CHARACTERISTICS:

Church membership, father.....Mother.....  
Church attendance, father.....Mother.....  
Sabbath-school attendance, father.....Mother.....Children.....  
Number of children in public schools.....  
Club membership, father.....Mother.....  
Fraternal orders, father.....Mother.....  
Labor organizations, father.....  
Means of recreation, father.....Mother.....Children.....  
Charity received.....  
Character of reading.....  
Interest in music.....  
General moral status.....  
Does father drink?.....Gamble?.....  
Date.....Surveyor

INDUSTRIAL SURVEY OF BLOOMINGTON

- 1. Firm name.....
- 2. Distribution of laborers as regards kind of employment.
  - a) Laborers.....
  - b) Skilled workmen.....
- 3. Source of labor supply.....
- 4. How may the public schools prepare employees more efficiently?.....
- 5. How have the schools hitherto successfully or unsuccessfully contributed to such preparation?.....
- 6. What changes in courses or methods would you suggest for more practical training?.....
- 7. Will the employment permit employees to attend part-time day-school?.....
- 8. Will evening schools be feasible for mature employees?.....
- 9. What special aptitudes and qualities (physical strength, dexterity, mental alertness, etc.) are considered most valuable in each line of employment?.....
- Information supplied by.....
- Interview conducted by.....Date.....

	Type of Skilled Labor	Number	Hours	Salary Maximum	Salary Minimum	Length of Time It Takes to Become Pro- ficient in	Overtime Require- ments	No. Days Work per Week	Work of a Seasonal Character	Causes for Seasonal Employment	Occupational Risks
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											

The gathering of the above data is done by the teachers themselves. The tabulation of the data will be done largely by clerical help. The final interpretation of the data will be made by the teachers, principals, and superintendent.

The educational survey proper should be made along lines in which standards of measurement have already been fairly well worked out, standards applicable to the construction, equipment, and maintenance of the school plant, to the qualifications, selection, and tenure of office of superintendents, principals, teachers, janitors, and other employees, to the course of study, to enrolling and holding individual pupils, and finally to measuring the quality of the performance of pupils in their school subjects.

In connection with some of these points, such as the construction and equipment of buildings, standards have been fairly well worked out for some time. These are adequately set forth in *American School*

*Houses* by Professor Fletcher B. Dresslar. Dr. Franklin Bobbitt, of the University of Chicago, is gathering some data that will ultimately be helpful along this line. The mimeographed blanks that he is using in gathering these data he will gladly furnish free of charge to superintendents within the North Central territory. Subjective standards have been used for a long time in measuring the quality of teaching done, but only recently have serious attempts been made to measure the quality of teaching by an objective measurement of the knowledge possessed by the subjects of the teaching. Among the most efficient and recent of the objective measures are:

1. Scales for measuring the quality of handwriting: one by Dr. Edward L. Thorndike and one by Dr. Leonard P. Ayres.
2. A scale for the measurement of quality in English composition by Dr. Milo B. Hillegas.
3. Spelling ability—its measurement and distribution—by Dr. B. R. Buckingham.
4. Arithmetical abilities, by Dr. C. W. Stone.
5. A series of tests by Dr. S. A. Courtis on arithmetic, reading, composition, punctuation, spelling, syntax, memory, and handwriting.
6. The measurement of achievement in drawing, by Dr. Edward L. Thorndike.

In the *Twelfth Yearbook* of the National Society for the Study of Education, Part I, "The Supervision of City Schools," Dr. Franklin Bobbitt presents a good discussion of the use of such tests for exact measurement purposes.

The Thorndike scale for measuring the quality of handwriting can be obtained from the Bureau of Publications, Teachers College, 120th Street and Broadway, New York City. The separate scales cost five cents each.

The Ayres scale for measuring the quality of handwriting can be obtained from the Division of Education, Russell Sage Foundation, 130 East Twenty-second Street, New York City. Price of scales, five cents each.

The Hillegas, Buckingham, and Stone tests are all published by the Bureau of Publications, Teachers College, New York City. The price of the Hillegas scales is two cents a copy; the Buckingham scale costs \$1.25 in cloth and \$0.95 in paper; the Stone tests are \$1.00.

The Courtis tests may be secured by writing Courtis Standard Tests, 82 Eliot Street, Detroit, Michigan.

Tests complete in sets ready for use:

Series A, Arithmetic, per thousand . . . . .	\$20.00
Series B, Arithmetic, per thousand . . . . .	18.00
Series C, English, per thousand . . . . .	20.00
Test 7, Series A, Loose sheets including necessary instructions and record sheets, per thousand . . . . .	10.00
Folders of instructions, each . . . . .	.05

With all of these helps supplemented as they will be very shortly by standards in many additional fields worked out under the supervision of Dr. Thorndike, it will be possible to measure the efficiency of any system of schools with a measure more tangible and less variable than that of personal opinion.

The following extracts from the report of the Committee on Standards and Tests for Judging the Efficiency of Schools and Systems of Schools, presented by Dr. George Drayton Strayer, is suggestive of the range of school conditions that lend themselves fairly adequately to objective measurement:

What methods are to be employed in an efficient school survey? A school survey will naturally aim to deal with those phases of school organization which are capable of exact objective review. Thus the financial management of the schools should be taken up. The physical equipment of the schools should be examined. The attendance at schools, including the question of enforcement of the compulsory attendance law, can be definitely determined. The rate of promotion within the grade can be definitely known. The number of children in a given classroom should be ascertained; the provisions that are made for exceptional children, including defectives; the method of training teachers, their qualifications, the method of their appointment, and the method of eliminating inefficient teachers should be considered. The salaries of teachers and the rules governing their tenure of office; the provisions that are made for the improvement of teachers during the period of their services; the organization and functions of the supervisory staff and the efficiency with which they carry out their work, especially with reference to their conduct with the classroom exercises; the efficiency of instruction, including an examination of the courses of studies; the methods of class instruction, including the variations in these methods of class instruction, the variations of these methods which are to be observed in the different parts of the system, and the measurement of the achievements of pupils in the subjects commonly taught:

all will be subject to careful review. There should also be made an examination of the provisions which exist within the system for recording such data as are necessary for the proper study of educational problems, together with recommendations concerning the use to be made of these facts.

Any school inquiry should, so far as is practicable, observe, measure, and report the conditions of the community's political, industrial, social, and educational life which favor or interfere with the work of the schools. Investigators should dwell upon the achievements of the school system, especially noting the direction in which it is moving. The measure of the efficiency of any school or system of schools must always be made in terms of the changes, developments, improvements, or growths in efficiency which have taken place under a given administration or during a given period of years.

After determining that an educational survey is essential to progress the question arises, "How can and should the survey be made and by whom should it be made?" There are school officials who feel that they themselves can take adequate care of their own school affairs and who consequently fail to welcome what they term interference from the outside in an attempt to point them to the light. There are those, too, on the outside who feel that practical school men are not among the elect as far as knowledge of what they should do and are doing is concerned, and can therefore be trusted with the job of overhauling themselves only at great risk and danger. There is, on the one hand, the attitude of self-satisfaction that begets a lazy, unintelligent conservatism that needs to be jostled out of its routine ruts, and such an attitude naturally brooks no foreign interference. On the other hand, there is the attitude of the outsider who sometimes feels that his genius alone is sufficient to delve to the bottom of existing difficulties and not even the aid of a native in holding a candle while he works is tolerated.

There is some foundation for the feeling that reform from within is initiated with difficulty. Those within a system are naturally controlled by traditions, and consequently travel the blazed trail without seeking new paths. Even philosophers tell us that schools of philosophy develop and tend to build a crust around their theories, so that new ideas can with difficulty penetrate current thought. Concentration on the old ways of doing things tends to enhance ignorance and to blind individuals to their own faults.

Aside from ignorance and the hampers of tradition, there is another reason, plausible on the surface, why a school system should be reformed



from without, namely, the tendency of human nature to defend past action and thus to furnish protection against adverse criticism. This argument is based on the assumption, however, that people are ultimately dishonest, a supposition that can scarcely be maintained, I think. Even if the supposition were correct, it would argue, in the long run, in favor of local authorities having a part in the survey in order to make it easier for them to discover, acknowledge, and correct the faults in the system.

Any school system needs expert direction and suggestions in connection with its surveys in order to avoid the pitfalls suggested above, but this concession does not carry with it the conclusion that the survey should be made wholly independently of the aid that the system itself can give.

The conventional habit of teachers of looking to superintendents and supervisors for all reforms has limited the possibility of teachers doing constructive work themselves; and the assumption of a similar attitude by school officials to the effect that they must have outsiders do all constructive work for them will tend to conceal from them and from society their own possibilities in the line of constructive work. In principle, then, the attitude of experts in feeling that school administrators cannot examine adequately their own work, even under direction, is vicious in character and harbors a tendency that the spirit of democracy has been vigorously attempting to shake off for centuries past. Just as any set of experts would rightly resent the assumption that an outside interest could properly diagnose their work without their help, so the school officials in any community, however benighted through ignorance and shackled by tradition, can justly assume that their suggestions and help would be valuable to outsiders in discovering points of strength and weakness. It is not the contention that every community is able of itself to initiate or even to carry out a reform movement, but rather that each community possesses the latent ability to be of invaluable service in such a reform under proper, unprejudiced guidance from without. It would doubtless be necessary to impart some leaven from the outside to stir up latent possibilities, but once these possibilities should be stirred up, set in motion, and directed, they should be able of their own momentum in a vast majority of cases to continue to pour out valuable results. If a locality is blind to its faults, that blindness cannot be cured by someone's saying: Behold! and then pointing out what there is to be seen. A more fundamental cure is necessary, and that cure is to lead the

benighted to the light of experience. The light of experience can come only with actual participation in the work.

To the argument for actual participation in the work by local school officials and the teaching corps itself there seems to be only one valid objection and that is the objection that such a survey stretches over too long a period of time. It is true that such a survey is a slower process than a survey made by outside experts, because the outside experts can devote all of their time to the one thing. Wherever it is essential that the survey be completed in a limited period of time the work should not be crowded on to the local teaching corps. Generally, however, the demand is not so insistent as to necessitate depriving local forces of the privilege of doing a large part of the actual survey work.

Assuming then that an adequate survey can be made by the school system itself under expert advice and guidance—and this assumption is certainly as sound as the opposite assumption until it is proved by trial to fail—we should examine in what way the results would be more desirable from such a survey than from one made wholly by those on the outside.

In the first place, defects are bound to be discovered by any adequate survey in even the best system of schools, and if these defects are to be remedied there must be a readjustment of the school officials to the new light unless the officials be simply ousted and new people be put in their places. Experience shows that the damage from the latter procedure is sometimes as bad as the original condition with its blindness to faults. Experience shows further that it is easier to adjust one's self to self-criticism than to criticism imposed from without. And the ease of making the new adjustment is an essential consideration in any procedure that is not merely destructive but constructive as well.

In the second place, the educative effect upon local authorities who make a survey themselves is of significant importance. Knowledge to the saturation point can come only by actual participation in the work. The mere review of results and conclusions slides off in a way that is readily understood by the teacher as opposed to the teller. With the full comprehension of the meaning of the survey—a comprehension that can come only through actual participation—comes not only a new consecration of service to the general problems of the profession and a more genuine willingness and inspiration to follow results revealed by the particular survey, but a more genuine knowledge of how to grapple with the perplexities that must continually confront school officials.

Not only are people more willing to correct and more capable of correcting errors that they themselves have had a hand in locating, but by so doing they disarm any tendency of local enemies to cast irreparable reflection upon the system or to make political capital out of the findings. The very fact that those within the system have discovered their own weaknesses is an argument that somehow or other they themselves will be able to eradicate these weaknesses. Hence the danger of an unwarranted clamor for a change in administration is reduced to a minimum.

Everyday observations and practices support the contention that errors should be discovered and cured largely from the inside. Forced reform and forcing attention to the need of reform are two very different things. The reform must take place within the individual, and the individual must himself feel the need for it through self-discovery, though the start toward that discovery be stimulated from the outside. An outside influence can only direct internal effort to a change. It cannot work the reform. And I take it that we do not want to lodge in our activity in school surveys on the level where we so long tarried in medical inspection—the plane of pointing out conditions without concern as to their ultimate remedy. Our democratic theory of freedom should operate at least to the extent of giving school systems an opportunity under capable guidance to diagnose their own cases and to work the consequent cure before demanding meek submission to the invasion of the foreigner and the putting on of the foreigner's habit in the solution of the difficulty.

A final though a minor argument for surveys by the local authorities is that of decreased cost. In the case of a local survey the workers and the machinery are both on the field, so the cost of transportation is eliminated. Salaries too are largely already supplied in the case of local investigation, whereas these are an added burden when surveyors from abroad are imported.

The self-survey under competent outside expert direction gradually forces itself upon one as opposed to the survey by outside experts because of the smaller financial cost, because of the avoidance of internal community eruptions stimulated by radical conclusions deduced from statistics unsympathetically gathered and interpreted, because, further, of the wholesome educational and stimulating effect of such a self-examination upon the whole teaching and supervisory corps of a school

system, and because, finally, such a work is the logical job of those already employed to determine and carry out the policies of the school system.

The following extract from the report of Professor G. D. Strayer, chairman of the Committee on Standards and Tests for Judging the Efficiency of Schools and Systems of Schools, presents briefly the opinion of this committee on this subject:

A survey can be most advantageously undertaken by the school officers. If the citizens wish to have a survey made they ought to be able to secure it through their regular representatives on the board. Groups of citizens who cannot secure such action through the board should be provided with means of carrying out a survey, and should feel justified in adding temporarily to the supervisory staff a group of specialists competent to undertake a thorough-going inquiry. Furthermore, the superintendent ought to be in position at any time to call in impartial professional advisors in case he finds school interests seriously jeopardized. Whether the survey originates with the superintendent, or with the board, or with an interested group of citizens, its purpose should be to protect and advance the interests of the children and youth of the community by employing specialists, either within or without the system, competent to study scientifically the school system, and able, by virtue of their experience as educators, to propose adequate and workable reforms.

The following extracts from letters written in reply to an inquiry for statements of attitude toward the co-operative plan of conducting school surveys makes clear the advisability of enlisting the services both of university experts and of local school people in school surveys:

W. C. BAGLEY, Director, School of Education, University of Illinois, Urbana, Ill.: I may say that we are very desirous in our department of co-operating in every helpful way with those who are conducting school surveys in our state. The Illinois State Teachers' Association, at its meeting in December, adopted a resolution favoring a state school survey to be made by the State Department of Public Instruction in co-operation with the School of Education at the University, the normal schools, and other educational institutions of the state. Pursuant to the spirit of the resolution a survey has been planned and the preliminary steps are now well under way. Professor Coffman is director of the survey and Professor Johnson, Professor Bobbitt of the University of Chicago, and myself are co-operating in the investigation of certain specific topics.

There are, of course, certain dangers that are involved in placing the leadership of these surveys in the hands of the educational departments of the

universities. I should say, however, that these dangers are quite overbalanced by the advantages which this policy involves.

PROFESSOR J. F. BOBBITT, School of Education, University of Chicago: The superintendent of a neighboring city recently proposed a survey for his school system, to be conducted by men from the University. While the response of teachers and principals was on the whole favorable, yet there were a few who asked, "Why should not you, the superintendent, make all necessary analyses of school conditions, point out merits and shortcomings, and make all the desirable recommendations? Why call in men from the University?"

Undoubtedly, as the questions imply, it is the superintendent's chief function to do just these very things, currently and continuously, for his school system. And yet there is, at the same time, full justification for an occasional analysis of school conditions by someone who is not a permanent member of the system, however good may be the work of the schools. While the members of the school organization have a far more intimate acquaintance with the details of the school work than any co-operating or temporarily employed outsider can possibly have, yet this very familiarity with the details of the work, filling as it does so large a portion of the field of vision, tends naturally and inevitably to shut out a sufficient view of the more general relations. A thing is to be seen in wide perspective only by one who can stand some distance away from it and view it as a whole, disinterestedly and objectively. One's vision must not be distorted by personal interests, personal acquaintances, and the forms of bias and prejudice that spring from these. However superior, therefore, may be the teaching and supervising staff of a city-school system, it seems desirable for a city to have periodically some disinterested outsider examine into the factors composing the educational situation.

It is in fact a necessary division of labor. The teachers and supervisors of the city are specialists in the details of that particular situation. The co-operating university workers are specialists in the more general relationships of educational movements. It is the business of the university men to see these movements as they exist throughout the country; it is the business of superintendent and teachers in a given city to see these movements in their concrete details as they exist in their particular city. Efficiency in both kinds of work is not easily possible under present conditions.

This specializing of functions and co-operating of the specialists is especially desirable during our present transitional age when our school systems are being thoroughly overhauled and reconstructed. The changes demanded require thought, study, and arduous, long-extended labors on the part of teachers and supervisors. Completely engrossed in the task of making the particular adjustments needed at the time, it is difficult to keep in mind the total movement of which the immediate tasks are but parts. They cannot well be sure as to the

next steps to be taken in any given case. They have distinct need of the specialist in the wider relations.

LOTUS D. COFFMAN, University of Illinois, Urbana, Illinois: In a number of states the movement to survey the public schools was initiated by people not officially connected with the schools. But in Illinois the survey now being organized was begun by the school people themselves. That this state might not prove a laggard in educational advancement, a number of men and women, representing every type of public education in the state, met in Springfield in response to a resolution passed by the last State Teachers' Association, calling for a state-wide educational survey, and appointed an executive committee consisting of President David Felmley of Normal, chairman; Superintendent Hugh S. Magill, Jr., Springfield; County Superintendent Charles McIntosh, Monticello; and Principal Morgan C. Hoggs, Chicago. Dr. Lotus D. Coffman of the University of Illinois was made an *ex-officio* member of the Executive Committee and director of the survey.

Faith in the possibilities of this survey is founded upon the number of agencies that have expressed a willingness to co-operate in carrying it forward. State Superintendent Francis G. Blair has authorized the committees to collect as much of the information as possible through his office and has offered the assistance of his statistical experts in collating the material. Assistance will be received from the State Teachers' Association and its large sectional organizations, the Principals' Club, the University of Chicago, Northwestern University, the normal schools of the state, and the University of Illinois.

HON. P. P. CLAXTON, United States Commissioner of Education, Washington, D.C.: I think your suggestion that universities should co-operate with school officials in making school surveys is a good one. Neither the university man nor the school man alone is capable of making the best survey. Both working together ought to make the survey much more valuable. It would be still more valuable if the university man and the public-school man and the business man could co-operate. The points of view of these are needed in making any adequate survey of a school system.

ELLWOOD P. CUBBERLEY, Leland Stanford Junior University, Stanford University, California: If school surveys are made in an appreciative spirit they can be made a very great help to city-school systems. Such surveys can best be made by those who have carefully studied the educational problem and who can approach the work of a survey with the idea of finding out the excellences of the system as well as its defects. I think we are not likely to have too many good surveys; but of investigations, as contrasted with surveys, we need very few. A good survey is in the nature of a taking of stock with a view to further purchase and development, and a school survey ought to offer a good constructive program for the community surveyed.



EDWARD C. ELLIOTT, University of Wisconsin, Madison, Wisconsin: I believe most heartily in the form of co-operation referred to in your letter of April 2 relative to school surveys. I believe the survey affords the most practical instrumentality for the accomplishment of what has always seemed to me to be the fundamental purpose of all such supervision. This purpose may be very simply summed up thus:

*To discover the truth about our institutions of education in such form and in such manner as will make our profession of citizenship more intelligent as to the motive, methods, and machinery of the whole school plan and to cause our profession of education to be more directly purposeful and more consciously constructive.*

If I were to analyze the above general purpose I would call attention to the following special items which seem to me to warrant attention on the part both of university students of education and of those engaged in actual practice in schools: (1) There is too wide a gap between our theories of education and our practices in schools. (2) There is too much pretense of teaching and school supervision, and, consequently, too little economical performance of fundamental educational worth. (3) We have had too few facts on which to ground whole truths about the productivity and economy of the public-school system. (4) We lack that kind of publicity necessary for the intelligent confidence of our people in their schools. (5) Our school systems move forward by drifting through the channels of least resistance, or, of greatest attractiveness, rather than by an intentional direction through the intricate passages that lead to the greatest ultimate utility.

W. A. JESSUP, University of Iowa, Iowa City, Iowa: Educational interests are to be congratulated on account of the present tendency to conduct school surveys by means of the co-operation between university experts and local school officials. Each institution has much to gain from this type of co-ordination. The school survey needs the expert ability, the scientific attitude, and the vision of the professor of school administration. The university, on the other hand, needs to come into contact with the real problems to be found in the development of an educational system.

G. D. STRAYER, Teachers College, Columbia University, New York: It is my belief that the specialist should be called in by the local administration for the purpose of giving advice when a school survey is to be made, for exactly the same reasons that specialists in other lines of study and investigation are used in their fields of inquiry. We are all familiar with the rôle played by the specialists in taxation, or in engineering, or in preventive medicine, and the like, in practical affairs. I am inclined to think that the combination of the practical administrative officer and of the student and investigator will always mean a higher degree of efficiency in the survey of a school system than can be expected if either works alone.

**HARLAN UPDEGRAFF**, University of Pennsylvania, Philadelphia, Pennsylvania: In my judgment, boards of education or superintendents, or both in unison, are warranted in calling upon educational experts in universities to express their opinions regarding the advisability of possible courses of action or the continuance of a policy that has been on trial. Such an expression may also serve a useful function in making known to a school board and citizens the status of their school system as compared with systems elsewhere, such knowledge to be used as a basis for determining further policies.

Professors of education in universities have peculiar advantages for such service in that they are well informed as to the latest developments in their respective fields and also in that they have opportunity to examine impartially the success of various plans in the schools that are visited by them. Particular care should be taken by such persons called upon to render this service that they gain a full and correct knowledge of the peculiarities of the local situation in which the inquiry is made. This is not always possible in the brief time that is sometimes allowed for these inquiries and herein lies a limitation to the usefulness of their service.

Two outlines follow, one a brief outline intended to be suggestive of some of the more important things that might be considered in a limited study of local educational conditions; the other a more elaborate outline given in the spirit of suggesting a range of subjects that might profitably be investigated in an educational survey of a small city system of schools. In no one system would it be desirable to attempt in any survey an investigation of all or of even a large part of the points suggested in the longer outline.

## A BRIEF OUTLINE FOR AN EDUCATIONAL SURVEY

### SCHOOL PLANT AND EQUIPMENT

#### I. General Facts about Each Building.

1. Description of location.
2. Floor plans.
3. Dimensions, original cost, date of erection, and present condition.
4. Material used in construction.
5. Protection from fire.
6. Heating and ventilating systems, description of.
7. Number, purpose, and size of various rooms in building.
8. Number of teachers and pupils accommodated.
9. Adequacy of steps and stairways for age and number of pupils accommodated.
10. Drinking and washing facilities.
11. Toilet accommodations.



**II. Specific Facts about Each Room.**

1. Use made of room.
2. Number and grade of pupils accommodated.
3. Seating.
4. Dimensions and size showing:
  - a) Cubic feet of air space per child.
  - b) Square feet floor space per child.
5. Blackboards.
  - a) Amount of available space.
  - b) Condition of.
6. Lighting.
  - a) Light space area compared with floor space area.
  - b) Height of top of windows compared with width of room.
  - c) Freedom from shadows cast on children's work.

**III. Equipment of Building as a Whole.**

1. Number, kind, and value of library books.
2. Same for musical instruments and equipment.
3. Same for other equipment like stereopticon, lantern slides, etc.
4. Same for sets of supplementary readers.
5. Same for equipment, such as wall maps and globes.

**ORGANIZATION, ADMINISTRATION, AND SUPERVISION**

**I. General Organization.**

1. School Board.
  - a) Number, term, and method of selection of members.
  - b) Qualifications required for membership.
  - c) Qualifications of present board and of boards for a period of years past.
  - d) Meetings.
    - (1) Time and place.
    - (2) Regularity of attendance.
    - (3) Contents, preparation, and preservation of minutes.
    - (4) Powers and duties.
      - (a) Exercised by board.
      - (b) Delegated by board.
2. Superintendent.
  - a) Qualifications required and term of office.
  - b) Qualifications actually possessed by superintendents for a period of years back.
  - c) Powers and duties.
  - d) List of things actually done in a period of time of from one to four weeks showing range of duties and relative amount of time devoted to each.

- c) Assistance given superintendent—
    - (1) By clerks.
    - (2) By assistant superintendent, or
    - (3) By principals being given time off from actual teaching.
3. Principals.
  - a) Qualifications required.
  - b) Qualifications possessed by present corps.
  - c) Duties required of principals.
  - d) List of such duties performed in a definite period of from one to four weeks in length.
  - e) Time free from recitation duties.
  - f) Assistance given by clerk.
4. Co-ordination of authority vested in school board, superintendent, principals.

## II. Business Administration.

- 1. Methods of bookkeeping.**
- 2. Filing system.**
- 3. Methods of purchasing, distributing, and keeping track of supplies.**
- 4. Samples of important reports and records regarding attendance and progress of pupils.**

### III. Educational Administration.

1. Teaching corps.
  - a) Qualifications required.
  - b) Qualifications actually possessed by present corps.
  - c) Permanency of.
  - d) System of improving qualifications of teachers already in the service.
2. Supervision of actual schoolroom teaching.
  - a) Statement of various things done within a limited period of time in an attempt to improve the classroom work of some specific teacher.
    - (1) Things done by superintendent.
    - (2) Things done by principals.
    - (3) Things done by special supervisor.
3. Supervision of course of study.
  - a) In making course of study, to what extent are services enlisted of—
    - (1) School board?
    - (2) Superintendent?
    - (3) Principals?
    - (4) Teachers?
  - b) Illustrate by use of a specific subject the method by which co-operation is secured.

## COURSE OF STUDY

## I. Different Subjects Included in the Course.

1. Very brief outline of the course in each subject.
2. Amount of time allowed to each subject per week in each grade.
  - a) For preparation on part of pupil.
  - b) For recitation.
3. Time required for average child to complete each portion of the course.
  - a) In primary grades by years only.
  - b) In department and high school by years and subjects.
4. Percentage of total failures that each year and each subject takes as its share of the failure toll.
5. Number of pupils and percentage of total enrolment in the grade taking each subject where an option is given.
6. Organization of course to meet varying individual and classroom abilities.
7. Titles and cost to pupils of public schools of textbooks in use.

## THE CHILD

## I. School Census.

1. Frequency and method of taking.
2. Census statistics.
  - a) Enumeration for a series of years past by years, age, sex, nationality—showing percentage of increase or decrease in each.

## II. Enrolment Statistics for Purpose of Showing Efficiency of System in Getting Pupils into School.

1. Enrolment for series of years past by age, grade, nationality, sex, time of year, occupation of parents.
2. Average age of beginning pupils—ages taken September 1 and February 1.
3. Number, age, and percentage by grades of pupils entering the system each year from outside systems of schools.
4. Number, age, and percentage by grades of pupils who have had all of their education in the local system.
5. Ratio of number of children in school over compulsory age to number within compulsory age. Degree to which this ratio is increasing or decreasing.
6. Machinery for getting children into school.
  - a) State law provisions.
  - b) Local initiative.
  - c) Promptness of reporting and disposing of cases.
  - d) Percentage of cases that have to be dealt with once, twice, three times, etc.

**III. Holding Power of School.**

1. Power of school to keep pupils on membership roll.
  - a) Age-grade tables by sex, buildings, and by combination of buildings.
  - b) Tables showing years in school and progress made by sex and buildings.
  - c) Percentage of old, young, or normal age for grade by sex and buildings.
  - d) Number and percentage of pupils, by time of year and grades, above compulsory school age leaving school.
  - e) Kind of pupils eliminated—dull, fair, bright.
  - f) Percentage that enter any one grade that persist to the next grade.
2. Maintenance of regular attendance of pupils on membership roll.
  - a) Percentage of attendance by sex, grades, buildings, rooms, months.
  - b) Tardiness—same as under *a*.
  - c) Attendance table by number of days attended during year.

**IV. Degree to Which Pupils Make Regular Promotions.**

1. Failures.
  - a) Percentage of failures by age, grade, subject, sex, building, rooms.
  - b) Effect of failure on succeeding term's work.
    - (1) In subjects failed in.
    - (2) In subjects passed during first term.
2. Repeaters.
  - a) Tables by age, grade, subject, sex, buildings, rooms.
  - b) Percentage of increase or decrease for a period of years.
  - c) Cost to system to reteach repeaters.
3. Retardation and acceleration statistics.
4. Distribution of withdrawals as to age, grade, building, etc.

**V. Quality of Passing Work Done by Pupils.**

1. Distribution by sex, grades, subjects, buildings, of grades made, showing number and percentage of grades made falling in the various groups as failing, fair, good, excellent, etc.

**VI. Measures to Preserve Health and to Protect Life.**

1. Protection from fire.
2. Sanitary precautions in care of buildings.
3. Physical training facilities.
4. Hygiene of instruction.
  - a) Specimen schoolroom programs showing various combinations of grades.
  - b) Amount of home study required, by grades.

## 5. Medical inspection.

- a) Kinds and frequency of examinations of buildings, children, and employees.
- b) Relation of defects discovered to defects remedied.

## VII. Tests to Discover Actual Efficiency of Pupils.

## 1. General efficiency.

- a) Binet-Simon tests to be given to backward children.

## 2. Efficiency in school subjects.

- a) Courtis tests.
- b) Writing tests—either Thorndike or Ayres.
- c) Hillegas—test in composition.
- d) Buckingham—tests in spelling.

## TEACHER

## I. Number of teachers employed by sex, grade taught, years of experience.

## II. Qualifications.

## 1. Actually possessed by present corps.

- a) Academic training.
- b) Teaching experience.
  - (1) Experience in local system.
  - (2) Experience in present position.
  - (3) Total teaching experience.

## III. Permanency of Teaching Corps.

## IV. The Work of the Teacher.

- 1. Number of pupils per teacher.
- 2. Number of classes per teacher.
- 3. Number of preparations per teacher.
- 4. Total amount of time per week teacher is required to spend on school work.
  - a) During school hours.
  - b) Outside of school hours.
- 5. Degree to which teachers are consulted concerning—
  - a) General school policies.
  - b) Making of course of study.
  - c) Selection of supplementary material.
  - d) Change of textbooks.

## V. Teachers' Meetings.

- 1. Kind, frequency, purpose.
- 2. Sample programs for various types of meetings.

**VI. Salaries.**

1. Actual salaries paid in each class of position.
2. Comparison of salary with that paid in towns of approximately same size in state.

**FINANCES**

- I. Comparison of local school system with other systems in regard to assessed valuation and relative amount of taxes devoted to education and taxes devoted to all other purposes.

**II. Receipts.**

1. Sources and amounts.
2. Rate of increase in proportion to number of children to be educated.

**III. Expenditures.**

1. Classified according to a system similar to one recommended by National Bureau of Education.
2. Per capita cost of various subjects and of various items of general expense based upon average number belonging or average daily attendance.

**IV. Summarize Expenses according to Plans Suggested by—**

1. Spaulding in the Newton, Massachusetts, reports.
2. Goodnow and Howe, in New York City survey.

**V. Estimate Receipts and Expenditures for Next Two or Three Years.****MISCELLANEOUS ITEMS****I. School Sessions.**

1. Length of school year, week, day, recitation period.

**II. Educational Problems Now Being Investigated by Local Corps.****III. Present Needs of System as Arrived at from Educational Survey.****IV. Constructive Suggestions as to How These Needs Can Be Efficiently Met without Undue Burden from Taxation.****A MORE ELABORATE OUTLINE FOR MAKING AN EDUCATIONAL SURVEY****FACTS ABOUT STRUCTURE AND EQUIPMENT OF SCHOOL PLANT****I. General Facts about Each Building.****1. Location.**

- a) Map showing various school districts and location of each building.

- b) Photograph of each building.

**2. General plan of building.**

- a) Floor plans.

- b) Arrangements for traditional school subjects and activities.

- c)* Arrangement for new and special school subjects and activities.
- d)* Uses other than school uses.
  - (1) Planned for in original construction of building.
  - (2) Provided for by modifications of building.
- e)* Size and present condition of the buildings.
  - (1) Total cubic feet of building space.
  - (2) Ground area of building in square feet.
  - (3) Number of stories.
  - (4) Construction cost per cubic foot of space.
  - (5) Present value.
  - (6) Date of erection.
- f)* Material.
  - (1) Outside walls.
  - (2) Roof.
  - (3) Floors.
    - (a) Basement.
    - (b) Halls and corridors.
    - (c) Stairways.
    - (d) Recitation rooms.
    - (e) Toilet-rooms.
    - (f) Gymnasium.
- g)* Protection from fire.
  - (1) Fireproof, not fireproof, slow-burning.
  - (2) Fire escapes, number and size.
  - (3) Exits and stairways, width and number.
  - (4) Number of pupils to the linear foot of entrance and exit space.
  - (5) Doors swinging in or out.
  - (6) Fire extinguishers within the building.
  - (7) Other fire-fighting apparatus.
  - (8) Automatic latches on doors as safeguard in case of fire or panic.
  - (9) Boiler-room inside or outside of building.
- h)* Heating and ventilation.
  - (1) Kind of heating plant.
    - (a) Stoves with or without jackets or screens.
    - (b) Hot-air furnace.
    - (c) Hot water.
    - (d) Steam.
    - (e) Combination.
  - (2) Method of ventilation.
    - (a) Doors and windows only.
    - (b) Gravity system.
    - (c) Fan or force system.

- (3) Air humidifier.
- (4) Automatic heat regulation.
- i) Rooms and hallways, number and size.
  - (1) Recitation rooms.
  - (2) Laboratories.
  - (3) Rooms for special work.
  - (4) Assembly room.
  - (5) Other miscellaneous rooms.
  - (6) Halls and corridors.
    - (a) Floor space.
    - (b) Floor space per child in average daily attendance.
  - (7) Number of rooms unoccupied.
  - (8) Number of rooms occupied.
  - (9) Number of sittings.
  - (10) Building space area and volume used for boiler-room, and storage.
  - (11) Cloak-rooms separate or in connection with recitation rooms.
- j) Teachers and pupils in each building.
  - (1) Number of pupils enrolled.
  - (2) Number of teachers assigned to each building.
- k) Steps and stairways.
  - (1) Number of steps to reach first floor.
  - (2) Stairways.
    - (a) Number of.
    - (b) Number of steps to each.
    - (c) Height of risers.
    - (d) Width of steps.
    - (e) Width of stairways.
    - (f) Landing between floors.
    - (g) Double or single stairways.
    - (h) Fireproof or not.
    - (i) Lighting.
    - (j) Length of stairways between landings.
    - (k) Hand rails.
- l) Drinking facilities.
  - (1) Source and purity of water supply.
  - (2) Pail and common drinking-cup.
  - (3) Pail and individual drinking-cup.
  - (4) Faucet and common drinking-cup.
  - (5) Faucet and individual drinking-cup.
  - (6) Pump and common drinking-cup.
  - (7) Pump and individual drinking-cup.



- (8) Drinking-fountains.
  - (a) Number and kind.
  - (b) On single floor or on all floors.
  - (c) Average number of pupils to each drinking-fountain.
- m) Washing facilities.
  - (1) Ordinary wash-basin.
  - (2) Flowing water.
  - (3) Number of wash-stands.
  - (4) Number of pupils to each wash-basin.
  - (5) Soap.
    - (a) Is soap furnished?
    - (b) Liquid or solid.
  - (6) Towels.
    - (a) Are towels furnished?
    - (b) Common or individual cloth towels.
    - (c) Paper towels.
- n) Toilet accommodations.
  - (1) Outside of building.
    - (a) Screens.
    - (b) Distance from buildings.
    - (c) Distance of boys from girls.
  - (2) Inside.
    - (a) Smead or flush system.
    - (b) Location.
      - i. In basement or where.
      - ii. In path of sun's rays or not.
      - iii. Individual flush pull.
      - iv. Automatic flush.
  - (3) Accommodations for boys.
    - (a) Toilet seats.
      - i. Kind.
      - ii. Number.
      - iii. Number of boys per seat.
    - (b) Urinals.
      - i. Number.
      - ii. Number of boys to one urinal.
  - (4) Accommodations for girls.
    - (a) Number of toilet seats.
    - (b) Number of girls to a seat.
  - (5) Toilets and urinals, how ventilated.

**II. Specific Facts about Each Room.**

1. Name of building.
2. Number of room.
3. Use made of room.
4. Number and grade of pupils accommodated.
5. Seating.
  - a) Chairs or desks.
  - b) Desks.
    - (1) Number and size of single non-adjustable.
    - (2) Number and size of single adjustable.
    - (3) Number and size of double non-adjustable.
    - (4) Number and size of double adjustable.
    - (5) Per cent of sittings in the room adjustable.
6. Size and dimensions.
  - a) Height.
  - b) Width.
  - c) Length.
  - d) Total number cubic feet.
  - e) Number cubic feet per child in average daily attendance.
  - f) Total square feet of floor space.
  - g) Number square feet of floor space per child in average daily attendance.
  - h) Width of aisles.
  - i) Width of space in front and in back of room and on sides.
  - j) Blackboards.
    - (1) Material.
    - (2) Length.
    - (3) Width.
    - (4) Height from floor.
    - (5) Total number square feet.
    - (6) Number square feet per pupil in average daily attendance.
  - k) Doors swing in or out.
  - l) Closets.
    - (1) Number.
    - (2) Dimensions.
    - (3) Cubic area.
    - (4) Shelf area.
  - m) Lighting.
    - (1) Number of windows.
    - (2) Dimensions of each window inside window frame.
    - (3) Total light area.

- (4) Ratio of window to floor space.
- (5) Height of window from floor.
- (6) Nearness of top of window to ceiling.
- (7) Relation of height of top of window to distance across room.
- (8) Arched or square tops.
- (9) Area of wall space separating windows.
- (10) Light from one side only.
- (11) Light from two adjacent sides.
- (12) Light from two opposite sides.
- (13) Light from three sides.
- (14) Light from four sides.
- (15) Kinds of window blinds.
- n) Decorations.
  - (1) Color of walls and ceilings.
  - (2) Frequency of decorating walls and ceiling.
  - (3) Number, size, and value of pictures.
  - (4) Number, size, and value of pieces of statuary.
  - (5) Value of all usable equipment.
  - (6) Value of all usable equipment per child in average daily attendance.
  - (7) Value of all decorative equipment per child in average daily attendance.

III. Equipment of Building as a Whole (following in many respects Dr. Bobbitt's outline).

- 1. Library.
  - a) Number of books of fiction.
  - b) Number of books of history.
  - c) Number of books of biography.
  - d) Number of books of poetry.
  - e) Number of books of science.
  - f) Number of books of reference.
  - g) Number of current event magazines.
  - h) Number of miscellaneous magazines.
  - i) Number of each of above per child enrolled.
  - j) Method of providing funds for library.
- 2. Number and value of pianos.
  - a) Value per child enrolled or in average daily attendance.
- 3. Number and value of organs.
  - a) Value per child enrolled or in average daily attendance.
- 4. Number and value of victrolas.
  - a) Value per child enrolled or in average daily attendance.

5. Number and value of piano-players.
  - a) Value per child enrolled or in average daily attendance.
6. Number and value of records for victrolas and piano-players.
  - a) Value per child enrolled or in average daily attendance.
7. Number and value of other musical instruments.
  - a) Value per child enrolled or in average daily attendance.
8. Supplementary readers.
  - a) Fields of work in which they are furnished.
  - b) Number of sets.
  - c) Number of individual books not in sets.
  - d) Total number of all such books.
  - e) Value per pupil in average daily attendance.
9. Wall maps.
  - a) Number.
  - b) Value.
  - c) Value per pupil in average daily attendance.
10. Globes.
  - a) Number.
  - b) Value.
  - c) Value per pupil in average daily attendance.
11. Other equipment like stereopticon, lantern slides, etc.
  - a) Value of all such.
  - b) Value per pupil in average daily attendance.

#### IV. Extension of Plant during Current Year.

1. Treat according to previous outline.
2. Give procedure in erection of new buildings or improvement of old buildings.

#### V. Extension of Equipment during Current Year.

1. Give for each building separately.
2. Equipment added by efforts of—
  - a) School board.
  - b) Principals and teachers.
  - c) Children.
  - d) Patrons.

### ORGANIZATION, ADMINISTRATION, AND SUPERVISION OF SCHOOLS

#### I. General Organization (largely following suggestions by Goodnow and Howe).

1. Legal organization of schools by state provision.
  - a) Brief history of legal provisions.
  - b) Present status.

- (1) Relation to state department of public instruction.
- (2) Relation to state board of education.
2. Administrative organization: co-ordination of authority as vested in—
  - a) School board.
    - (1) Brief historical evolution of school board in the state.
    - (2) Present legal relations of board to—
      - (a) State authorities.
      - (b) County authorities.
      - (c) City authorities.
    - (3) Number and method of selection and term of office of members of the board.
    - (4) Personnel of school board for period of years past.
    - (5) Qualifications.
    - (6) Organization.
      - (a) Officers.
      - (b) Committees.
    - (7) Salaries.
    - (8) Meetings.
      - (a) Place and time of meeting.
      - (b) Those present—board, superintendent, clerk, public.
      - (c) Regularity of attendance of members.
      - (d) Length of meetings.
        - i. Illustrate by series of consecutive meetings.
      - (e) Minutes.
        - i. Prepared by whom.
        - ii. How recorded: give samples.
        - iii. Contents of minutes.
      - (f) Preparation of business for board.
    - (9) Efficiency of board.
      - (a) Give concrete examples showing efficiency of board in getting things done in a satisfactory manner and without loss of time.
    - (10) Give account of procedure in connection with getting new school buildings.
      - (a) Selection of architect.
      - (b) Advertising for bond sale.
      - (c) Sale of bonds, if bonds are sold.
      - (d) Receiving bids on building.
      - (e) Awarding contracts.

**(11) Powers and duties of the board.****(a) Legislative powers exercised by board, such as—**

- i. Determining the kinds of schools and nature of instruction.
- ii. Controlling conduct of schools by legislation.
- iii. Determining under legal limitations, who shall be admitted to school.
- iv. Determining salaries and qualifications of teachers and providing for their appointment.
- v. Same as (iv) for other employees.
- vi. Regulating finances.

**(b) Legislative powers delegated to—****i. Superintendent, such as—**

- [a] Changes in course of study.
- [b] Selection of textbooks, apparatus, and other scholastic supplies.
- [c] Nomination of teachers and other employees.

**ii. Principals.****(c) Administrative powers exercised by board, such as—**

- i. Construction of buildings.
- ii. Granting permission for outside use of school buildings.
- iii. Final power in selection of and dismissal of employees on recommendation of superintendent.
- iv. Levying taxes.
- v. Issuing bonds.
- vi. Selection of superintendent.
- vii. Expansion of educational system.
- viii. Authorizing changes proposed by superintendent.

**(d) Administrative powers delegated to the superintendent, such as—**

- i. Approval of building plans.
- ii. Improvements to grounds and buildings.
- iii. Purchase of emergency materials, etc.

**b) Superintendent.****(1) Historical evolution of the office of superintendent in city and state.****(2) Qualifications and term of office.****(3) Powers and duties, such as—**

- (a) Providing and keeping all records and reports.
- (b) Compilation of statistics.
- (c) Custody of books and documents of the school board.
- (d) Keeping of school board minutes.

- (e) Making minor rules relating to conduct of schools.
- (f) General supervision of instruction.
- (g) General supervision of course of study.
- (h) Nominating and assigning teachers.
- (i) Appointing teachers in time of emergency, and action ratified at next meeting of board.
- (j) Recommending salaries to be paid.
- (k) Power of dismissal with or without any special authority from board.
- (l) Expending money without any special authority.
- (m) Attending all board meetings and overseeing the writing-up of minutes.
- (n) Give list of routine things done by the superintendent during one week.
- (4) Clerical assistance allowed.
  - (a) List of duties of clerk.
- (5) Expenses to teachers' meeting allowed or not.
- (6) Office hours.
- (7) List of things actually done by superintendent in a period of from one to four consecutive weeks.
- c) Principals.
  - (1) Qualifications of present principals.
    - (a) Special interest in problems of school administration.
  - (2) Administrative and supervisory duties.
    - (a) List of things they do.
  - (3) Assistance given them.
    - (a) Clerk.
      - i. List of things clerks do.
  - (4) Amount of teaching done by principals.

## II. Business Administration.

### 1. Methods of bookkeeping.

- a) Give sample pages from various books used or of cards if card system is used.
- b) Enumerate the various accounts kept separately, such as those suggested by the National Bureau of Education.
- c) Give explanation of methods of recording so as to be easily accessible, payments of bonds, interest, and insurance.
- d) Methods of filing correspondence, reports, supplementary information in—
  - (1) School board office.
  - (2) Superintendent's office.

- (3) Principals' offices.
- (4) By special supervisors.
- (5) By heads of departments.
- (6) In recitation rooms for convenience of teachers.
- e) Samples of important reports and records, individual and summary, regarding attendance and progress of pupils.
  - (1) Reports for general office.
  - (2) Reports for benefit of teachers and principals in efficient management of an individual building.
- f) System of ordering, distributing, and keeping track of supplies.
  - (1) To be consumed in ordinary work of the school, such as—
    - (a) Chalk.
    - (b) Paper.
    - (c) Pencils, etc.
  - (2) Non-destructible, such as—
    - (a) Erasers.
- g) System of keeping adequate track of minor purchases for repairs of buildings, etc.
- h) System of keeping adequate track of supplementary readers and other helps when passed from room to room within the building or between the buildings.
- 2. Operation of physical school plant.
  - a) Organization for keeping plant open and in operation.
  - b) Care of building.
  - c) Protection of building by insurance.
    - (1) Show proportion of real value of each building insured against—
      - (a) Fire.
      - (b) Storm.
      - (c) Earthquake.
  - d) System for furnishing and checking up consumption in janitors' supplies.

### III. Educational Administration.

- 1. Teaching corps.
  - a) Provision of.
  - b) Methods of increasing permanence of.
  - c) System of improving qualifications of teachers already in service.
- 2. Supervision of actual schoolroom teaching.
  - a) List of important points determining teacher's success.
  - b) Concrete statement of method of keeping track of improvement in work.





**III. Subjects or Parts of Subjects That Are Optional.**

1. With teacher.
2. With pupil.

**IV. Objective Measurements, if Possible, of Degree to Which Teachers Follow Course of Study.****V. Ways in Which Course of Study is Made Suggestive to Teachers.****VI. Organization of Course to Meet Varying Individual and Class-Group Abilities.****VII. Textbooks in Use.**

1. List of.
2. State uniformity or local discretion.
3. Method of adoption in each case.
4. Are books furnished free to all children?
5. How are poor children supplied with books?
6. How often are books changed?
7. Are they all changed at one time or gradually?
8. Cost per pupil for each grade—
  - a) If new books are bought by pupils each term.
  - b) If books are held from term to term and used in succeeding grades where possible.
  - c) If books are furnished by school.
9. List of sets of supplementary books by grades.
  - a) Method of selection of supplementary books.

**THE CHILD****I. School Census.**

1. Taking of census.
  - a) Time of year taken and how taken.
  - b) Legal provisions.
  - c) Method of taking.
    - (1) Exhibit blanks.
  - d) Pay for taking.
  - e) Who takes census?
  - f) What constitutes school age for census purposes?
2. Census statistics.
  - a) Enumeration for five years back by years, sex, and nationality.
  - b) Homes represented in the last enumeration.
    - (1) Number.
    - (2) Number having one, two, three, four children of school age.
    - (3) Number having more than four children of school age.
    - (4) Times family moved during school history of children.

- c)* Enumeration by wards and years, showing number and percentage of yearly increase or decrease.

## II. Enrolment Statistics for Purpose of Showing Efficiency of System in Getting Pupils into School.

1. Enrolment for several years past by race, nationality, and sex.
2. Enrolment by grades—percentage of total enrolment in each grade.
3. Distribution of pupils by grades and occupation and education of parents.
4. Nativity census of enrolment.
  - a)* Number born in city.
  - b)* Number born in county outside of city.
  - c)* Number born in state outside of county.
  - d)* Number born in each of the states.
  - e)* Number born in foreign countries.
  - f)* Number birthplace unknown.
5. Distribution of enrolment at various dates during term.
  - a)* First day.
  - b)* First week.
  - c)* First month.
  - d)* Each succeeding month.

$\left\{ \begin{array}{l} \text{Percentage each is of first} \\ \text{day's enrolment.} \end{array} \right.$
6. Enrolment by age and sex of pupils new to the system.
7. Enrolment in high school by subjects and years.
8. Enrolment by departments—high school, grammar, primary.
9. Show visually relative number of pupils in each grade.
10. Graphic presentation of increase of census over enrolment.
11. Beginners by age and sex. Show age at which pupils first enter school.
12. Number and percentage of pupils living outside the corporation but attending school in the city.
13. Number and percentage of pupils entering system for first time, showing how many school systems have contributed to the present educational status of the pupils.
14. Number and percentage of children in school that have had all of their education in local system.
15. Ratio of number of children in school over compulsory age to the number within the compulsory age. Degree to which this ratio is increasing or decreasing.
16. Tuition of pupils by grades.
17. Grades pupils enter when entering from other systems.
18. State law and its efficiency in getting pupils in.

19. Machinery for enforcing the law in this regard.
  - a) Truant officers.
    - (1) Method of election.
    - (2) Pay.
    - (3) Term of office.
    - (4) Duties and powers.
  - b) Blanks for reports.
  - c) Time given to work.
    - (1) Number of pupils enrolled for each hour of service per week.
    - (2) Cost per pupil per hour of service.
  - d) Absences.
    - (1) Legal.
    - (2) Illegal.
    - (3) Reports by buildings.
    - (4) By months.
  - e) Promptness of reporting cases to truant officer, also promptness of disposing of cases.
  - f) Disposition of cases.
  - g) Preventive measures.
  - h) How efficient is work? How many have to be dealt with two times? Three times, etc.?
  - i) Number of visits made by truant officer.
  - j) Number of cases reported and disposed of.
  - k) Probation plan.

### III. Holding Power of School.

1. Age-grade tables by sex.
2. Years-in-school and progress-made tables by sex.
3. Percentage of old, young, normal age for grade.
4. Number and percentage of pupils over five, six, seven, nineteen, twenty, etc.
5. Age distribution in various grades.
6. Percentage of children fourteen years of age or over who have reached grades 5, 6, 7, etc.
7. Number and percentage of children of fourteen years of age or over who returned to school after summer vacation.
8. Number and percentage of graduates, common- and high-school, who go ahead with school work.
9. Membership of each grade on basis of 100 beginners.
10. Median ages of pupils in each grade.
11. Withdrawals by age, sex, months, grades.
12. Causes of withdrawals.

13. Ratio by years of number of children in school over compulsory age to number within compulsory age.
14. Ratio of number over compulsory age in school to number over age according to school census.
15. Extent to which elimination takes place in the grades.
16. Pupils failing to return at the beginning of school in the fall.
  - a) Age.
  - b) Grade.
  - c) School record.
  - d) Reasons for leaving.
  - e) Attitude of parents.
  - f) Character of work secured, pay, how position was obtained, how new work was learned.
  - g) Was position secured the kind wanted?
  - h) Attitude of child toward evening school or part-time classes.
17. Number leaving high school last year without graduating.
18. Number of pupils by sex between fourteen and sixteen leaving school each year.
19. Grades in which pupils drop out.
20. Withdrawals by months.
21. Percentage entering school that graduate.
22. Percentage of total enrolment leaving in each grade.
23. Number and percentage of over-legal-age pupils returning after a failure.
24. Percentage of total enrolment found in each grade.
25. Percentage of fourteen-, fifteen-, sixteen-, etc., year-olds withdrawing before close of year.
26. Distribution of withdrawals by ages, and causes.
27. Number and percentage of those entering each grade that persist to next grade.
28. Number and percentage by grades and ages of those that drop out before reaching next grade.
29. Number and percentage by grades and ages of those entering any one year that persist to the next year.
30. Number and percentage by grades and ages of those entering one year that do not persist to the next year.
31. Kind of pupils eliminated.
  - a) Dull.
  - b) Average.
  - c) Bright.

32. Average length of school life by grades and ages of pupils over school age who return to school after a failure.
33. Conditions influencing pupils to leave school.
  - a) Statements as given by parents.
  - b) Statements as given by pupils.
  - c) School training of parents.
  - d) Attitude of parents toward further education for their children.
  - e) Occupation of parents.
  - f) Social status of parents.
  - g) Retardation of pupils.

#### IV. Maintenance of Regular Attendance after Pupils Are in School.

1. Percentage of attendance by sex, grades, months, rooms, buildings, and by previous years.
2. Tardiness same as 1. Also number of cases and number of separate pupils.
3. Causes of poor attendance and tardiness.
4. Attendance table by number of days.
5. Days in week and part of day that attendance is best.
6. Effect of specific subjects upon attendance and tardiness.
7. Table showing percentage of average daily attendance on average register as compared with previous years.

#### V. Degree to Which Pupils Make Regular Promotion.

1. Failures.
  - a) Figure percentage of failures by age, grade, and subject for each term for several terms.
  - b) Degree to which examinations are responsible for failure—
    - (1) In several grades below the high school.
    - (2) In high school.
  - c) Percentage of those entering system for first time that fail.
  - d) Effect of failure on succeeding term's work—
    - (1) In subjects failed in.
    - (2) In subjects passed in during first term.
  - e) Distribution of pupils by subjects and failures, by age and failures, by grades and failures.
2. Repeaters.
  - a) By age, grade, sex, building, teacher, for several terms.
  - b) Percentage of increase and decrease.
  - c) Cost to reteach repeaters.
3. Retardation.
  - a) Relation of absences to retardation.
  - b) Relation of various other factors to retardation.

- c) Retardation for each grade for those that have had 1, 2, 3, 4, 5 years in local system of schools compared with pupils from outside.
  - d) Average retardation of those entering system.
  - e) Retardation—
    - (1) In the system.
    - (2) By the system.
    - (3) By other systems.
  - f) Percentage of waste—ratio of number of points failed to number of points earned.
  - g) Of number enrolled give number and percentage making no credits, one credit, two credits, etc.
  - h) Comparative performance of failing pupils with various teachers in various grades.
4. Acceleration.
- a) Same as for retardation.
  - b) Plans for promoting acceleration and avoiding retardation.
    - (1) Semiannual promotions.
    - (2) Promotions by subjects.
    - (3) High-school subjects offered in grades.
    - (4) Special groups—strong and weak.
      - (a) Number of pupils ahead of grade by grades.
      - (b) Number of pupils behind grade by grades.
    - (5) Special teachers.
    - (6) Separation of sexes.
    - (7) Adjusting courses of study to pupils.
    - (8) Supervised study.
    - (9) Summer school.
    - (10) Notifying parents of delinquencies.
    - (11) Table showing by grades number of pupils receiving one or more promotions during the year.
    - (12) Precautions against pushing brilliant pupils too rapidly.

#### VI. Quality of Passing Work Done by Pupils.

- 1. Distribution of grades made showing number and percentage of the grades made falling within the various groups as follows: failing, fair, good, excellent, etc.; or 95-100; 90-95; 85-90; 80-85; 75-80; below 75, if 75 is passing mark.
  - a) Distribute for whole school in all subjects.
  - b) Distribute for each year and by groups of years in all subjects.
  - c) Distribute by subjects for all years combined.
  - d) Distribute by subjects and years.
  - e) Distribute also by age and sex.

2. In all of above find middle 50 per cent and show graphically as well as by tables.
3. Comparative performance of pupils trained—
  - a) In local school and in schools in other corporations.
    - (1) Compare as to—
      - (a) Entrance age in any particular grade.
      - (b) Attendance.
      - (c) Quality of work previously done.
    - (2) Comparison as to work done—
      - (a) By subjects—
        - i. As to scholarship, showing median grades and distribution as to rank.
  - b) Same for pupils trained in certain grades in different buildings of local system and coming together later on for departmental or high-school work.
  - c) Same for pupils trained in same building by different teachers and later grouped together under one teacher. Such analysis helps materially in locating teachers whose work persists as pupils advance.
4. Degree to which pupils maintain their standing when they enter other systems of schools through moving.
5. Performance of high-school graduates when they enter higher institutions of learning compared with graduates from other systems of schools.
6. Age of pupils in each grade of school work making each quality of grade. Are "excellents," for instance, made by under-age, normal, or average pupils?
7. Measure retention of rank as far as grades are concerned as pupil advances in work.
  - a) Retention of rank from year to year by years and subjects.
  - b) Retention of rank throughout the succeeding part of the course with any one year taken as a basis.
  - c) Measure effect on future work of double promotions.

#### VII. Correlations That Could Profitably Be Worked Out.

1. Correlation of grades in the various subjects in any one term or series of terms.
2. Correlation of retention of rank by terms and by subjects—
  - a) From term to term.
  - b) Throughout the course with any one year taken as a basis.
3. Correlation between visual acuity and scholastic standing of pupils in various common- and high-school branches.



4. Correlation of auditory acuity and scholastic standing of pupils in various common- and high-school subjects.
5. Correlation of any physical defect with scholastic standing of pupils in various common- and high-school subjects.
6. Distribution of vision groups among intelligence groups in various common- and high-school subjects.
7. Distribution of auditory groups among intelligence groups in various common- and high-school subjects.
8. Attendance of pupils and occupation of parents.
9. Attendance of pupils and progress made in school work.
10. Occupation of parents and school progress made by pupils.
11. Deportment of pupil and school progress of pupil.

### VIII. Graduates.

1. Number and percentage of pupils reaching any particular grade continued to—
  - a) Graduation from common schools.
  - b) Graduation from high schools.
2. Number and percentage of those who finish either common schools or high schools who finish in the normal number of years of work.
3. Number and percentage of those who finish either common or high schools who finish at the normal age.
4. Number and percentage of high-school graduates that—
  - a) Enter college.
  - b) Finish one, two, three years.
  - c) Graduate.

### IX. Measures to Preserve Health and to Protect Life.

1. Protection from fire.
  - a) Fire drills.
    - (1) Directions for giving.
    - (2) Time necessary to empty building.
    - (3) Frequency of drills.
  - b) Exits and stairways, width and number.
  - c) Doors opening outward.
  - d) Automatic latches.
  - e) Degree of fireproofing in the building.
  - f) Fire extinguishers.
  - g) Wiring insulated.
  - h) Firebox of boilers sufficiently removed from inflammable material.
  - i) Rubbish in basement.

**2. Sanitation.**

- a) How often are furniture, woodwork, and floors washed ?**
- b) How often are rooms disinfected ?**
- c) Rooms cleaned by—**
  - (1) Broom.**
  - (2) Oil.**
  - (3) Brush.**
  - (4) Vacuum cleaning.**
  - (5) Dry sweeping.**
  - (6) How dusted ?**
- d) Wall cleaned or brushed down. Frequency.**
- e) Erasers and chalk ledges and blackboards cleaned how often by—**
  - (1) Janitors ?**
  - (2) Teachers ?**
  - (3) Pupils ?**
- f) Windows washed how often ?**
- g) How often are all marks, carvings, etc., removed and furniture revarnished ?**
- h) Toilets.**
  - (1) How often and how cleaned ?**
  - (2) Lighting.**
  - (3) Ventilation.**
  - (4) Sunshine.**
  - (5) Toilet paper furnished ?**
- i) How often is air changed in room ?**
- j) Is air washed and humidified ?**
- k) Temperature of recitation rooms.**
- l) Drinking-fountains.**
  - (1) Same as before described.**

**3. Physical training provisions.**

- a) Provisions for indoor and outdoor play and games.**
- b) Classroom gymnastics.**
- c) Gymnasium or hall gymnastics.**
- d) Correctional exercises.**
- e) Athletic teams and leagues.**
- f) Swimming.**
- g) Bathing.**
- h) Boy Scout organization.**
- i) Camp Fire Girls organization.**
- j) Folk dancing.**
- k) Formation of personal hygiene habits.**
- l) Instruction in feeding, clothing, and sleep of pupils.**

- m*) Instruction in use of tooth brush.
- n*) Instruction in detrimental effects of use of coffee, tobacco, narcotics.
- 4. Hygiene of instruction.
  - a*) Specimen of schoolroom programs showing various combinations of grades.
  - b*) Does the type of print pupils are called upon to read suit the eyes?
  - c*) Methods used to prevent overstrain and other detrimental by-products resulting from strenuous effort on part of teacher or school system to maintain a high degree of efficiency.
  - d*) Are lighting and seating up to standard?
  - e*) Degree of home study required in the various grades.
- 5. Medical inspection.
  - a*) History of, in local system.
  - b*) Number of officers.
  - c*) Salaries.
  - d*) Time given to work.
  - e*) Cost per hour of examiner's service.
  - f*) Cost per week per pupil enrolled.
  - g*) Purposes of inspection.
  - h*) Scope of work.
    - (1) Frequency of examination of children.
    - (2) Frequency and thoroughness of inspection of sanitary conditions of buildings.
    - (3) Exclusion of children suffering from contagious diseases.
    - (4) Special examination of mental defectives.
    - (5) Examination of all children absent on account of sickness before giving entrance certificates.
    - (6) Periodical examination of all children in case of epidemic.
    - (7) Examination of teachers or other employees at initiation of inspector or at direction of board.
  - i*) Relation of defects discovered to defects remedied? Is this ratio increasing or decreasing?
  - j*) Forms used.
  - k*) Emergency help.
    - (1) When inspector cannot do all the work are others called in to help?
  - l*) Causes of exclusions by years, time of year, and sex.
- 6. Health talks by physicians.
- 7. Teaching of hygiene.
  - a*) How low in the grades is it taught?
  - b*) Essential topics emphasized.

**X. Tests to Discover Actual Efficiency of Pupils.**

1. General efficiency.
  - a) Binet-Simon.
2. Efficiency in school subjects.
  - a) Teachers' estimates in term reports.
  - b) Final examinations.
    - (1) History of how they are made.
    - (2) Samples of them.
    - (3) Forms for reports on these tests.
    - (4) Amount they count.
3. Other tests.
  - a) Stone tests in arithmetic.
  - b) Courtis tests in arithmetic, reading, language, and handwriting.
  - c) Writing—Thorndike or Ayres.
  - d) Composition—Hillegas tests in composition.
  - e) Thompson's minimum essentials.
  - f) Buckingham tests in spelling.

**XI. Employment of Children.**

1. How pupils were employed last summer by age, grade, sex.
2. Same for other holiday periods: Saturdays, Christmas.
3. Number of pupils partially supporting themselves during school and what they do; also recompense.
4. Relation between kind of jobs pupils have during summer who did not return to school and those who gave up their positions and returned to school.
5. Table of workers by age, sex, and those returning and those not returning.
6. Average age of workers by grades.

**XII. Pupil Activities.**

1. Athletics.
2. Plays.
3. Papers and other publications.
4. Clubs.
  - a) Fraternities.
  - b) Subject clubs.
  - c) Literary.
  - d) Debating and other organizations.

**XIII. Summary Tables in Regard to Above Points.**

## TEACHERS

## I. Number of Teachers Employed.

1. By sex.
2. By years, grades, and subjects.
3. Show yearly increase or decrease in above.
4. By sections of country from which teachers are drawn.
5. By years of experience.

## II. Qualifications.

1. Required—board ruling.
2. Of present corps.
  - a) Academic training.
  - b) Experience in teaching.
    - (1) Total years' experience.
    - (2) Experience in local system.
    - (3) Experience in present position.
  - c) Kind of license held.
  - d) Sample of blank required to be filled by all applicants for positions.

## III. Terms of Appointment.

## IV. Nominations Made by Whom?

## V. Permanency of Teaching Corps.

1. Table to show the percentage of teachers for the various periods of service.
2. List of all teachers who have resigned and reasons for resigning.
3. Increase of salaries in new positions.
4. Percentage of those changing each year in grades and high school.

## VI. The Work of the Teacher.

1. Number of pupils per teacher.
  - a) Enrolment.
  - b) Average belonging.
  - c) Average daily attendance.
2. Number of classes to the teacher.
3. Number of recitations to the teacher.
4. Total class time of teacher.
5. Additional required time at school—minutes per week.
6. Time spent in school work away from school.
7. Total time given to school work—minutes per week.
8. Total time at school—minutes per week.
9. Time at teachers' meetings—minutes per month.
10. Number of educational books read during a limited period of time.

11. Number of educational journals read regularly.
12. For each teacher in high school and for each period of the day—
  - a) Grade taught.
  - b) Subject taught.
  - c) Number pupils.
  - d) Minutes recitations per week.
  - e) Minutes laboratory or shop work per week.
  - f) Minutes study work per week.
  - g) Minutes consultation per week.
13. Table showing increase or decrease in size of classes and percentage of increase or decrease.
14. Degree to which teachers are consulted concerning—
  - a) General school policies.
  - b) Making course of study.
  - c) Selection of supplementary material.
  - d) Change of textbooks.
15. Give samples of assignment made in various subjects by teachers.

**VII. Improvement of Teachers through—**

1. Observation of teaching within the system.
2. Visits to neighboring towns.
3. University extension work or summer-school work.
4. Leave of absence.
5. Travels.
6. Reading.
7. Lectures to teachers.

**VIII. Teachers' Meetings.**

1. General, district, state, or national attended.
2. Meetings with supervisors.
  - a) Drawing.
  - b) Music.
    - (1) Required.
    - (2) Voluntary.
  - c) Writing.
  - d) Physical education.
  - e) Give samples of work done in above meetings.
3. Meetings with new teachers and superintendent at beginning of school.
4. General meeting at beginning of school—
  - a) Of principals and superintendent.
    - (1) Give list of subjects discussed.

- b) Of all teachers and superintendent.
  - c) Meeting of teachers with principals preceding opening of school.
5. Meetings during year—
- a) With principals.
    - (1) For building problems.
    - (2) For professional work.
  - b) With superintendent and principals.
    - (1) Grade meetings.
    - (2) Course-of-study meetings.
    - (3) Visiting-day meetings.
    - (4) Special-subject meetings.
    - (5) Examination-questions meetings.
    - (6) Meetings with truant officer.
    - (7) Meetings for presentation and explanation of plans and methods of instruction applicable to all grades.
    - (8) Give examples of work done in each type of above meetings.

## IX. Income.

1. Salaries.
  - a) Table showing number of teachers at various salaries in elementary and high schools.
  - b) Percentage of increase in past years.
  - c) Compare second with increase in cost of living.
  - d) Basis for determining salary.
    - (1) Quality of license.
    - (2) Experience.
    - (3) Grade taught.
    - (4) Success as a teacher.
2. Other income.
  - a) Vacation work.
  - b) Other sources.
3. Number and percentage of teachers having to support others than themselves.
4. Pension system.

## X. Freedom of Teachers to Experiment.

## FINANCES

- I. Comparison of Local School System with Other Systems in Regard to Assessed Valuation and Relative Amount of Taxes Devoted to Education and Taxes Devoted to All Other Purposes.**

**II. Receipts.****1. Directly by board.****a) From state.**

(1) Basis of distribution of this fund by state.

**b) Local.**

(1) From taxation.

(a) Designate the various funds.

(2) From tuition.

(a) Cash by pupils.

(b) From township trustees for transfers.

(3) From other sources.

(a) Interest on deposits.

(b) Sale of bonds.

(c) Sale of property.

(d) Refunds from errors.

(e) Sale of textbooks.

(f) Sale of manual-training and domestic-science products.

(g) Any other sources.

c) Taxation, total and for school purposes for several years past.

2. Received by principals of the several buildings for various purposes.

3. Limitations on use of funds.

4. Resources from various funds for several years past.

**III. Expenditures.****1. Basis of paying out money.**

a) Original order.

b) Bills approved by comparison with original order and goods received.

c) Recommended for payment by superintendent.

d) Ordered paid by board.

e) Mailed by whom?

2. Per capita cost based on population twenty-one years of age or over, total population, school enrolment, number belonging, average daily attendance, or students per hour of instruction in—

a) Manual training.

b) Sewing.

c) Drawing supervision.

d) Music supervision.

e) Elementary schools.

f) High schools.

g) Separate subjects in high schools.

h) Various items of expenditure.



- i) Various types of expense.
  - (1) Instruction.
  - (2) Administration.
- j) Various buildings.
- k) Various buildings by types of expenditures.
- 3. Compare local system with other cities in regard to above items of expense.
- 4. Summaries of expense.
  - a) For past five or ten years.
  - b) For past two years in detail according to plan of—
    - (1) Spaulding.
    - (2) Goodnow and Howe.
  - c) Estimated receipts and disbursements for future years.

#### MISCELLANEOUS ITEMS

- I. Educational Problems Being Investigated at Present by—
  - 1. Superintendent.
  - 2. Individual principals.
  - 3. Individual teachers.
  - 4. Individual buildings.
  - 5. Other co-operative studies.
- II. School Sessions.
  - 1. Length of year.
  - 2. Length of week.
  - 3. Length of day.
  - 4. Length of recitation period.
  - 5. Time building is open for admission of pupils.
  - 6. Time teachers are required to be present.
  - 7. Length of recess and noon intermission.
- III. Improvements in Various Lines during Limited Number of Years.
- IV. Present Needs of System as Arrived at from Educational Survey.
- V. Constructive Suggestions as to How These Needs Can Be Efficiently Met without Undue Burden from Taxation.

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- c) Buckingham, B. R. Spelling Ability—Its Measurement and Distribution, published by Teachers College, Columbia University, New York City.
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- e) Hillegas, Milo B. "A Scale for the Measurement of Quality in English Composition," Teachers College Record, September, 1912.
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2. Blan, L. B. "A Special Study of the Incidence of Retardation," Columbia University Contributions to Education, Teachers College Series.
3. Bobbitt, J. F. "Some General Principles of Management Applied to the Problems of City School Systems," Twelfth Yearbook, National Society for the Study of Education.
4. Clement, J. A. Standardization of the Schools of Kansas, published by the University of Chicago Press, Chicago, Ill.
5. Coffman, L. D. "The Social Composition of the Teaching Population," Columbia University Contributions to Education, Teachers College Series.
6. Cubberley, E. P. "School Funds and Their Apportionment," Columbia University Contributions to Education, Teachers College Series.
7. Elliott, E. C. "Fiscal Aspects of Public Education," Columbia University Contributions to Education, Teachers College Series.
8. Haney, J. D. "Registration of City School Children," Columbia University Contributions to Education, Teachers College Series.
9. Keyes, C. H. "Progress through the Grades of City Schools," Columbia University Contributions to Education, Teachers College Series.
10. Jessup, W. A. "The Social Factors Affecting Special Supervision in the Schools of the United States," Columbia University Contributions to Education, Teachers College Series.
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## SUMMARY OF TYPICAL SCHOOL SURVEYS

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During the year 1913 the Committee of the National Council of Education known as the Committee on Tests and Standards of Efficiency in Schools and School Systems found that it required in its work a summary of such school surveys as had up to that time been completed. The Committee accordingly directed its secretary to collect copies of such surveys and render a report on them. The report was sent to members of the Committee on June 30, 1913, and was substantially the same as the following. Additions to the report as then made are included in the following pages covering New York, Ohio, Portland, Michigan, Philadelphia, and the Carnegie Foundation surveys. New York was not included in the report to the Committee because it was so well known to all the members. Ohio, Portland, Vermont, Michigan, and Philadelphia had not at that time been surveyed. The medical report of the Carnegie Foundation is also added, because it certainly belongs in any list of typical surveys.

The summary of school surveys now presented is not complete, but it includes all of the major surveys and gives a view of the different types of such inquiries. The chronology of reports is respected in a general way and the reader will certainly not fail to see that there has been a steady evolution in the methods of inquiry and in the form of presenting results.

### FIRST BOISE SURVEY

During one week in November, 1910, Superintendent Kendall, at the request of the School Board and the Superintendent, made a survey of the schools of Boise, Idaho. The report was published in a local newspaper, the *Idaho Statesman*, on December 18, 1910. It deals with (1) School Buildings, (2) Teachers, (3) Course of Study, (4) Organization of Schools, and (5) Attitude of the Community. The facts on which conclusions are based were collected through six days of personal observation. There are no tables in the report. Recommendations based on

personal observation are made and the report concludes with a brief statement by the Superintendent to the effect that Board action was taken along the various lines recommended. The report is favorable and the recommendations are all in the direction of enlargement—enlargement of the staff; enlargement of the course, especially by including more industrial courses; enlargement of the organization by adding ungraded classes. The report is 6 pages in length.

#### MONTCLAIR SURVEY

In May, 1911, Professor Hanus reported to the Board of Education of Montclair, New Jersey, on the schools of that city. The report deals with (1) General Survey, (2) Teachers and Teaching, (3) Program of Studies in (a) Elementary Schools and (b) High Schools. The report was printed in a pamphlet. The body of the report is 21 pages in length and contains numerous tables and reports of personal observations, the latter apparently based on four days of visiting in the schools. Criticisms are made in detail and numerous recommendations are made.

The tables include: (1) a table of marks in the high school comparing Montclair grades with those in other high schools; (2) a table of time distribution of subjects in grades comparing Montclair and Newton, Massachusetts; (3) general tables of retardation, average ages, and reasons for leaving school; for one school a detailed table of ages and a table of nationalities.

The recommendations on course of study are specific and detailed. The criticisms on general organization are based on the tables. The high school is criticized in its material equipment and in its course of study.

Professor Hanus notes explicitly at the end of his report that he has laid stress on what seemed to be the shortcomings of the Montclair schools and not on their many obvious merits.

#### BALTIMORE SURVEY

In June, 1911, a Commission consisting of United States Commissioner of Education E. E. Brown, Professor E. P. Cubberley, Superintendent C. N. Kendall, with two assistants, namely, Messrs. N. B. Hillegas and Harlan Updegraff, rendered a report to the Board of School Commissioners of the city of Baltimore on the schools of that city. This report was published as *Bulletin 1911, No. 4*, Whole Number 450, of the

United States Bureau of Education. The body of the text contains 102 pages. A summary of 8 pages precedes the detailed tables and reports and presents the findings of the Commission. The body of the report consists of five chapters. Chap. i (6 pages) describes the plan and history of the survey itself. Chap. ii (26 pages) gives a history of the Baltimore school system and an outline of the social and legal relations of the system. Chap. iii (44 pages) deals with the following topics: (a) System of Supervision; (b) Teaching Force and Its Training; (c) The Elementary Curriculum. Chap. iv (10 pages) deals with the physical conditions in the schools. Chap. v (9 pages) deals with various general topics.

The text includes numerous tables and charts. In many of these charts the Baltimore schools are compared with schools in the other leading cities of the United States.

This report contains much matter dealing directly with the problem of administration and supervision and with the criticisms of the administration. It is evident from the whole tone of the report that the Commission was expected to pass judgment, either favorable or unfavorable, upon the administration.

In point of method it may be noted that comparison with other cities is much emphasized. Personal inspection is recorded as having been made in one-half of the schools and in 250 classrooms. The statement regarding the scope of the report is especially full and suggestive for the use of those engaged in the study of surveys (pp. 18-19).

The report is fully indexed.

With regard to this survey it may be stated that it was made at a time when a controversy between the School Board and the Superintendent was at its height. The immediate effect of the report was small. The School Board, dominated by political motives, failed to reappoint the Superintendent, and many of the unfavorable conditions which are described in the report were allowed to continue or grow worse, while many of the strong policies for which the Superintendent had been working were allowed to lapse.

#### EAST ORANGE SURVEY

During the autumn of 1911 Professor Moore prepared for the Board of Education of East Orange a report on the schools of that city. The report was printed in a pamphlet of 64 pages early in 1912. Professor

Moore reports that he visited all of the classrooms in both elementary and high schools, talked with most of the teachers and supervising officers, examined the pupils in grades V, VI, VII, and VIII, and consulted with citizens. The report contains the following sections: (1) Historical Sketch; (2) Relation of School to Community; (3) Board of Education; (4) Cost of Schools; (5) General Survey; (6) Teachers; (7) A New Course of Study; (8) The High School; (9) Summary of Recommendations. The text contains tables, several comparing the schools of East Orange with those of other systems. The text is somewhat more general than that of other reports, making excursions into the general field of educational theory and urging conformity in the schools to the general principle that schools should train in thinking rather than in a set amount of subject-matter. The report has the form of an appeal to the general lay reader, though in the discussion of many topics, such, for example, as the subjects of instruction, detailed descriptions of the desirable requirements are given. The tone of the report is not severely critical, though numerous recommendations for enlargement of the schools are made.

#### GREENWICH EXHIBIT

In June, 1912, the Russell Sage Foundation brought to its consummation at Greenwich, Connecticut, an educational survey which is unique in its mode of presentation. The technical details of this survey are nowhere apparent. An educational exhibit was presented to the citizens of that city and a pamphlet of 24 pages was distributed. This pamphlet gives pictures, diagrams, and maps setting forth vividly the needs of improvement. There are pictures and charts which show the respects in which other school systems are superior to those of Greenwich.

#### BRIDGEPORT SURVEY

During February, 1913, Superintendent Van Sickle reported to the Board of Education of Bridgeport, Connecticut, his findings on the schools of that city. The report is printed in a pamphlet of 129 pages. Mr. Van Sickle had the assistance of Dr. Ayres, Dr. H. S. West of Cincinnati, Mr. Gordy, Mr. E. E. Mackary of Springfield, Mr. E. Hebden of Baltimore, and Mr. E. H. Webster of Springfield.

The report consists of (1) Preliminary Comments and Recommendations (6 pages); (2) A Financial Study of the System (19 pages); (3) Dis-

tribution of Pupils (10 pages); (4) The City Normal School (10 pages); (5) The High School (8 pages); (6) The Industries of Bridgeport and Industrial Education (16 pages); (7) Special Subjects: History, English, and a Series of Tests in Arithmetic (47 pages).

The report contains numerous comparative tables. It is based on observations and these tables and presents many technical details. It frankly emphasizes the points in which the schools are found to be defective. The demand for more investment of public funds in the schools is presented in such a way that the lay reader would be able to understand the comparisons. The rest of the report is more in the form of a technical report useful to school officers. The paragraphs on the Industries and Vocational Education are full and emphatic and ought perhaps to be described as popular in form.

#### SECOND BOISE SURVEY

In February, 1913, a commission consisting of Professors Elliott, Judd, and Strayer undertook, at the request of the Board of Education of Boise, Idaho, a second survey of the schools of that city. The report is a pamphlet of 31 pages. The following are the section headings: (1) Scope of Examination (half-page); (2) The Course of Study (2 pages); (3) Supervision (2 pages); (4) The Teaching Staff (2 pages); (5) Classification and Progress of Children through the School System (3 pages); (6) Parks and Playgrounds (1 page); (7) The School Plant (1 page); (8) Expenditures (9 pages); (9) Co-operation of the Community with the Public Schools (2 pages); (10) Report on Instruction as Observed.

The report was based on material accessible in the office of the Superintendent and on observation. There are comparative tables. In tone the report is commendatory, with numerous suggestions for enlargement of the school system. In form the report is intended for the lay reader.

#### NEW YORK SCHOOL INQUIRY

This report consists of three volumes of 820, 829, and 924 pages, respectively. It weighs sixteen pounds and contains the reports of twelve educational experts, five engineers and accountants, and two students of government organizations, together with correspondence, summaries, and recommendations attaching to the reports. The cost of the survey was \$95,139. The report was completed about three years



after the appointment of the Committee of the Board of Estimate and Apportionment, which was in charge of the inquiry.

The history of the inquiry is briefly as follows: Certain investigations of the Russell Sage Foundation and of the Bureau of Municipal Research had stimulated interest in the problems of school expenditure and organization and had raised in the minds of the members of the Board of Estimate and Apportionment doubts as to the efficiency of the existing school organization in New York City. Furthermore, questions had arisen from time to time between the Board of Education and the financial board of the city with regard to jurisdiction over funds. These doubts and questions led the Board of Estimate and Apportionment in 1910 to unfavorable action on the request of the Board of Education for an increase in school funds. At the same time the Board of Estimate and Apportionment appointed a committee to make an inquiry into the organization and operations of the city school system.

This committee, after consultation with a number of educators, secured the services of Professor Hanus, of Harvard, to direct the educational survey. He associated with himself eleven other workers, who took up various aspects of the school operations. Under the immediate supervision of the general Committee and without special relations to Professor Hanus' work, an independent survey of the physical and financial conditions of the schools was undertaken by a staff of engineers and accountants.

It is not appropriate in this brief summary to attempt any account of the contents of the three volumes of the report. The first two volumes are the result of the work of Professor Hanus and his associates in the educational survey. The last volume contains the reports of the financial and physical experts and also the statement of the work that was done by two later appointees, whose report is substituted for the rejected report of one of Professor Hanus' associates.

The history of the publication of the report itself is of some interest. A dispute arose between the Committee of the Board of Estimate and Apportionment and one of Professor Hanus' associates, namely, Professor Moore, of Yale University. Professor Moore had been charged with the responsibility of preparing a report on the administrative aspects of the school organization. He did not answer all of the supplementary questions which were put to him by the Committee, and on this ground the Committee felt justified in refusing to accept and pub-



lish this portion of the report. The original form of the publication of the report was in small pamphlets dealing with the independent contributions of each of the individual members of the educational survey. These independent contributions were prefaced in each case by a portion of Professor Hanus' general report. The bringing together of all Professor Hanus' work was not possible, therefore, until the final three volumes of the report were issued. In the meantime most of the material was reprinted by the World Book Company, and because of the limited number of the official reports printed it is probable that the distribution of the report to students of education will depend chiefly on this outside edition.

It is quite impossible to make any single statement about the bulky reports of the various individual investigators. The reports contain a large number of tables which summarize the studies made by these investigators. They also contain descriptive accounts of observations made in the schools themselves. There is much illustrative material, such as photographs and charts, which supports the statements made by the observers.

The report also contains numerous recommendations which have stimulated discussion throughout the teaching staff of the city of New York and throughout the educational world. These recommendations have frequently been criticized as unfounded. On the other hand, a good deal of objective evidence was presented in each of the reports and it is the contention of the members of the inquiry staff that they made a sufficient investigation of the conditions and reported enough verifiable facts to justify in a scientific way the recommendations made.

Perhaps the most significant result of this inquiry is the establishment in the office of the Superintendent of Schools of New York City of a Bureau of Statistics and Inquiry. The results of the inquiry have also been taken up and extended by several independent organizations, especially the Public Education Association of the City of New York and the Bureau of Municipal Research. Both of these associations have issued publications bearing upon different aspects of the report. Furthermore, the local teachers' associations have devoted much attention in committee and in general session to various aspects of the report.

#### REPORTS OF CARNEGIE FOUNDATION

The Carnegie Foundation has published two notable reports of surveys, one of the medical schools of the United States and one of the

educational system of the state of Vermont. The first appeared in 1910, the second in 1914.

#### SUMMARY OF MEDICAL SCHOOLS

The survey of medical schools was made by Abraham Flexner and consists of 326 pages of text preceded by an introduction by President Pritchett of the Foundation and followed by an index and an appendix giving a statistical summary of the facts regarding all of the schools investigated. In point of method the report presents the results of personal inspection and also a careful digest of a large body of documentary evidence, such as catalogues, reports, special communications, and historical materials.

The report is divided into a general discussion and a detailed report on individual schools arranged by states. The general part of the report opens with a historical account of medical education in the United States and Canada. Then follow summaries of the ideal and actual basis of medical education, of the course of study (74 pages), of the financial aspects of the situation (17 pages), and of such topics as medical sects, medical state boards, education of special classes, such as graduate students, women, negroes.

The report is very pointed in its criticisms of the general situation and of special schools. The reconstruction of medical education which has been going on since the appearance of this report is the strongest evidence of its strength and timeliness.

The survey was undertaken by the Foundation because it was found that the administration of university pensions immediately involved the Foundation in the consideration of the relation of medical schools to universities. Historically and in fact medical schools have only the loosest connection with universities. The agent of the Foundation was not invited by many of the schools, while in others he was welcomed and his work facilitated as fully as possible.

#### VERMONT SURVEY

The survey of Vermont was undertaken at the request of a commission created by action of the state legislature. The legislature had its attention drawn by the governor of the state to the fact that several of the higher institutions of education which were drawing on the state treasury were not co-ordinated in their work and were out of relation to

the public schools. It seemed wise, therefore, to canvass the whole situation with a view to determining the best method of readjusting all of the educational activities. The commission appointed to report to the legislature turned to the Foundation with the request that that institution carry on the investigation.

The report, consisting of 241 pages, sets forth in detail the findings of a group of workers employed by the Foundation. The report is made up of three parts. Part I (16 pages) states briefly how the survey was begun, how it was carried on, and what the investigators recommend. Part II (197 pages) presents in descriptive chapters the observations and findings of the surveyors. Part III (16 pages) presents a statistical summary of the facts discussed in the earlier sections of the report. Part II opens with a description of the state and its educational system. The description takes up in turn the elementary schools, secondary schools, normal schools, vocational schools, and higher institutions. A good deal of space is given to the support of these various school units.

Vermont presents essentially a rural school situation with a few larger communities. The virtue of this report is the large and exhaustive way in which this situation is presented. There is much critical discussion, but the facts seem to be representative and the criticism is directed to constructive recommendations.

The most striking single feature of the report is the recommendation that the state devote its energies and its expenditures to the development of the common schools, even to the extent of withdrawing state aid from the higher institutions which now enjoy some state support.

#### BUREAU OF MUNICIPAL RESEARCH SURVEYS

The Bureau of Municipal Research did not reply to the request of the secretary of the Committee on School Efficiency for copies of the various investigations which have been made by this bureau or its agents. The secretary has had in hand two manuscript reports—one on St. Paul, one on a rural district. These will be briefly outlined. It is also possible to summarize two printed reports issued by the Bureau, namely, the report on Wisconsin Rural Schools and the report on the City of Atlanta. In the course of correspondence incidental reference has been made to reports on Syracuse and Waterbury, but these are not accessible to the secretary. Attention is also drawn to the fact that a continuous series of small leaflets and postcards is distributed by the

Bureau to school superintendents and school officials. On these leaflets and postcards summaries, questions, and criticisms are circulated, especially with reference to the New York inquiry.

#### ST. PAUL SURVEY

The survey of public schools of the city of St. Paul was undertaken at the request of a committee of citizens who defrayed the expenses of the survey. The survey falls into three sections: (1) a section dealing with the financial records of the Board of Education and the disbursement of funds; (2) a section dealing with the organization of the office of the Superintendent; and (3) a section dealing with the organization of instruction in the schools. The first section points out the difficulty of extracting from the present books of the Board of Education any accurate figures with regard to different types of instruction and the cost of different phases of the work of the schools. A series of detailed recommendations for changes in the accounting system was made, most of which could have been covered by the single recommendation that the Board adopt the system of accounting which is recommended by the Bureau of Education. The office of the Superintendent is severely criticized because it is deficient in clerical assistance and because the physical conditions did not seem satisfactory to the surveyor. With regard to instruction, a series of concrete examples is given of poor work in the schools. The report after it was prepared was submitted to the Board of Education and was published in sections in the public press of the city. In tone the report is distinctly critical of the school system. The recommendations that are made are based upon general and in many respects abstract standards of efficiency. This becomes especially clear when one considers the situation with reference to the organization of the Superintendent's office. It is stated, for example, that the Superintendent himself is unable to devote himself to his particular duties because he is in a noisy and public office. The Superintendent calls attention to the fact that he deliberately put himself in this sort of office in order that he might be accessible to the citizens of St. Paul and in order that he might have a direct view of the work of the office. The report is an appeal to the citizens of St. Paul for very radical changes.

#### RURAL DISTRICT SURVEY

A second manuscript report of the Bureau relates to an enterprise which is under consideration by a philanthropic gentleman who intends to start a school in Maryland for a group of orphan boys whom he

intends to adopt. The district which is surveyed in this report is a country district including an area of perhaps ten miles on each side. There are several different schools and small settlements included within this territory.

It is recommended that a new consolidated school replace these schools. In justification of this recommendation a survey of the physical conditions of the existing schools is undertaken and the departure of these schools from the sanitary and architectural standards which ought to be recommended is clearly pointed out. Also examples are given of inefficient instruction. Positive recommendations are made setting forth the standards of construction which should be adopted in the new school; also recommendations of a general type are made with regard to the employment of a higher grade of teachers for the consolidated school. The problem of transportation is discussed at some length. In this discussion of consolidation no reference is made to the laws of Maryland which would have to be considered in bringing about the consolidation and no adequate account is taken of the willingness of the various communities thus to be consolidated. Finally, the physical difficulties of transportation are very lightly treated. The survey is in its tone extremely critical of the existing schools and very optimistic about the advantages of the consolidation. In form it is a recommendation to a single individual and is to be used by the agents of the gentleman to whom it was rendered.

#### WISCONSIN SURVEY

In August, 1912, a preliminary report on the needs and conditions of the rural schools of Wisconsin was published in a pamphlet of 92 pages. This report was given out as a field study reported to the Wisconsin State Board of Public Affairs by members of the Training School for Public Service. It should be noted that this report, which is primarily a school report, is addressed to a board in the state of Wisconsin which is not in charge of the schools of that state. The report contains, first, a summary of the agencies which make for the improvement of rural schools. The second part contains a survey of lax methods of controlling school expenditures. In this section many details are given of bad management in special districts. The third part contains a survey of the sanitary and educational conditions in the rural schools. The fourth part gives an account of defects in county supervision in the districts visited. The fifth part gives an account of the defects in the

general state supervision of these same districts. The sixth part contrasts the state supervision of state training schools and the state supervision of rural schools. The seventh part contains a series of suggestions for administrative and legislative remedies.

In tone the report is radically critical, not only of the rural schools, but also of the state department. It is addressed to the people of the state in the apparent hope of bringing about legislative changes which shall be advantageous. It may be interesting to note in this connection that the county superintendents at their annual meeting immediately following the appearance of this report passed a series of resolutions in which they describe the report as unfair and inadequate. They point out that the material was collected hastily, that it is not typical, that it does not reach all of the important districts in the state, and that it will be harmful to further state legislation rather than helpful to it. The essential matter which may be of interest to the present Committee is that the report was organized and presented under the auspices of a board wholly unrelated to the educational board of the state.

#### ATLANTA SURVEY

The survey of the schools of Atlanta is part of a double survey by the Department of Health and the Department of Education. The report is made to the Chamber of Commerce and appeared in a pamphlet of 44 pages, 24 of which refer to schools. The report on schools deals with the physical conditions, with administrative organization, and with observations or so-called "field observations" made in the schools. There are several tables of retardation and examples of record-sheets which are recommended.

#### OHIO SURVEY

The most comprehensive piece of work which has been done by the Bureau is the Ohio survey, which was carried out under the supervision of Mr. Horace L. Brittain. The report of this survey is a volume of 352 pages. It appeared in 1914. In the appendix (46 pages) are presented in full the "Field Forms and Questionnaires" used in gathering the materials presented in the report. The report is full of very picturesque and concrete materials, photographs, charts which exhibit in striking ways the population of districts and the equipment of schools, and brief, pointed, descriptive paragraphs and recommendations. The report

differs from most survey reports in that it does not aim to present any coherent exhaustive discussions. It is a series of snapshots and racy, "snappy" recommendations.

In the preparation of the report the co-operation of a very large body of workers was secured. Teachers in normal schools and colleges, superintendents, and grade teachers all co-operated to an extent which stimulated the interest of the entire school population of the state. The criticisms were such as to indicate the need of a more general supervisory scheme and the necessity of better training of teachers.

As a result of the survey and the recommendations which were reached, a special session of the legislature enacted a radical revision of the state school laws. The new law provides for supervision and for a redistribution of state funds on the basis of number of teachers and average daily attendance of pupils. There is a minimum wage for teachers, higher training to be required. There is to be a standardization of schools and an admission to higher schools without examination. There is more supervision and a requirement of new subjects in the course of study. There can be no doubt that school reform has gone forward with a rush as a result of the revelations made by the survey.

#### WISCONSIN STATE REPORTS

During the latter part of 1912 two reports were prepared and issued by the Wisconsin State Department of Education on the rural schools of that state. These reports are evidently prepared by the Bureau of Municipal Research by developing a constructive policy looking toward consolidation of schools and more supervision. The state Superintendent secured the co-operation of a committee of citizens. This Committee of Fifteen through a subcommittee has collected much information regarding consolidation of schools in Wisconsin and other states. A general report of 30 pages is issued by the whole Committee and a special report on Consolidation (90 pages in length) is issued from the subcommittee. The report of the whole Committee is very general in its terms. There is one table showing how little supervision is provided and there is general discussion of the needs of improvement in the teaching staff and in the equipment of rural schools. The report on Consolidation is much more concrete. It contains photographs, arguments in favor of consolidation, and facts regarding the success of consolidation in other states.



## NORTH CENTRAL ASSOCIATION SURVEY OF COLLEGES AND UNIVERSITIES

In order to prepare a list of approved colleges and universities for the use of the Association, the colleges and universities of the North Central territory were asked in February, 1913, to fill out elaborate blanks giving full information regarding modes of admission, size of student body, sizes of classes, number of members of faculty, hours of work of the faculty, material equipment, income, and expenditures. On the basis of the returns the secretary of the Commission, which is a branch or Standing Committee of the Association, prepared a series of tables showing the facts with regard to seventy-three approved institutions. These facts are embodied in twenty-three tables with explanatory comments. The report is a pamphlet of 32 pages, issued as *Monograph Supplement No. 4*, of the *School Review*. Subsequent reports of a similar type are promised.

## PORTLAND SURVEY

Late in 1912 the taxpayers of the city of Portland, Oregon, at a regular meeting appropriated funds and appointed a committee for the purpose of surveying their schools. The cost of conducting the system had increased nearly sixfold in a decade, while the population had increased only a little more than twofold. Furthermore, there was a feeling throughout the city that the organization of the schools was not so highly efficient as might be desired.

The Committee secured the services of Professor Cubberley, who associated with himself a number of others, and in August, 1913, a report was rendered. The report is printed in a volume of 317 pages. It is made up of four parts. Part I (68 pages) deals with Organization and Administration; Part II (145 pages) deals with Instructional Needs; Part III (69 pages) deals with Buildings and Health; Part IV (33 pages) deals with Attendance, Records, Costs.

The report is intended for the interested layman as well as for school officers. To this end the general principles of school organization and management are discussed at length. There are numerous tables and charts setting forth the facts on which recommendations are based.

The report is critical of the system, chiefly on the grounds that the Board of Education had taken over too many details of administration and that the instructional staffs had become very slow to exercise initiative and their work had been reduced to a stereotyped formality. The



major part of the report deals with these difficulties. The method of collecting the facts was through observations made by the surveyors and through the material collected in the form of reports and through the office of the Superintendent. The survey must be described as an outside survey and its effect has been to lead to a very radical reorganization of the system.

#### MICHIGAN CO-OPERATIVE SURVEY

An interesting example of a co-operative survey undertaken by a teachers' association is presented in the report issued in 1913 by the Upper Peninsula (Michigan) Educational Association.

The report is a pamphlet of 48 pages and is divided into three parts, one on rural schools (13 pages), one on city graded schools (21 pages), and a third (4 pages) on high schools. The rest of the pamphlet is devoted to introduction and recommendations.

The reports were made by school officers. The number of teachers sending in reports is almost the same for the rural schools as for the city schools, so that comparisons are easily made. In all, 1,412 grade teachers, 24 superintendents, and 7 commissioners reported, representing twelve of the fifteen counties; 702 rural teachers reported, 710 city teachers. Of the rural teachers, 137 are without any training for their work and 172 are normal or college graduates. The cities and towns all demand normal or college graduation as prerequisite for grade teachers' certification.

The average number of pupils per teacher in the city and village schools is 37; the average in the rural schools is considerably less, although there are 37 rural schools with more than 50 pupils. The pupils are a surprising mixture of nationalities, the single town of Ironwood reporting 22 nationalities.

The region is devoted to mining, lumbering, and agriculture; the schools consequently make prominent manual-training and agricultural instruction—16 out of the 24 towns reporting give manual training, 7 give agriculture. Six of the towns have trade schools, taught by instructors who have practiced the trades. Trades taught include carpentering, plumbing, blacksmithing, bricklaying, machine-shop, metal work, and pattern-making; two schools have trade courses for girls in dressmaking. The city schools are giving more manual training, trade work, and agriculture than are the country schools.

The city teachers report that 77 out of the total of 710 are performing experiments in physiology along with their instruction. Ninety-nine of these same teachers report taking geography classes on field trips. In the country 152 teachers are performing experiments in physiology; 151 are taking their classes on field trips in geography.

The influence of such a co-operative research is to draw attention to scientific methods of school inspection and incidentally to stimulate much experimentation of the type noted in the last paragraph.

#### MINNEAPOLIS SURVEY<sup>1</sup>

The Minneapolis Teachers Club published a volume in 1913 entitled *A Vocational Survey of Minneapolis*.

This survey was made by a group of men and women, self-appointed, but representative of a wide range of interests, as follows: the Pillsbury Settlement House, the Board of Education, the Trade and Labor Assembly, the manufacturing interests, the public-school teachers, the State Labor Department, Unity House, the Associated Charities, the University of Minnesota, the Y.M.C.A., the Jewish Charities, and the Voters' League.

The purpose of the survey was to discover what relation, if any, existed between the school training and the subsequent vocational success of children leaving school between the ages of fourteen and sixteen. The method adopted was to get a selected list of 500 names of children who had left school five years prior to the survey; to find these 500 children, if possible; and to make an intensive study of each individual case.

The tentative list originally secured contained 543 names. This list was reduced by 191 names for the following reasons: death of child, 10; removal of family from city, 35; inaccuracy of data as to age or date at which child left school, 140; incomplete information, 6. The remaining 352 names constituted the group of which the study was made.

The various studies related to nationality, school grades, retardation, responsibility for leaving school, social conditions, initial occupations, tenure of positions, and wages.

In conclusion the Committee submitted ten recommendations, all of them related to proposed reorganization or amplification of the school system.

<sup>1</sup> Contributed by Professor F. M. Leavitt.

These recommendations commended the "six-three-and-three" plan, the continuation school, the creation of a department of vocational guidance, improvement of school records, the appointment, as an adjunct to the Board of Education, of an advisory commission, the taking of a school census, and the proposal of new compulsory school legislation.

#### PHILADELPHIA SURVEY<sup>1</sup>

The Public Education Association of Philadelphia made a survey of 13,740 children regularly employed and legally employed, between the ages of fourteen and sixteen. This study was based on the school census of June, 1912, and was made with the co-operation of the Department of Superintendents and the Chief of the Bureau of Compulsory Education.

The study sought to answer two questions: first, as to what kind of industries such children were employed in, and, second, as to what wages they received.

The study states that, while the number of working children studied was only a portion of the total number employed, the presumption is warranted that those studied are typical of the entire group.

The study showed among other things the distribution of child workers by the nativity of their fathers; the proportion of child workers in various industries; the relative distribution of boys and girls in the different occupations. The result of the study of wages is given in seven statistical tables.

The following interesting conclusions were drawn from the study:

1. That the problem of the working child is not an immigrant problem, since over 50 per cent of those reported as at work are of the second generation of American birth.
2. That this is not the problem of the boy alone, since over 49 per cent of the workers are girls.
3. That the vast majority of children who leave school at fourteen to enter industry go into those kinds of employment which offer a large initial wage for simple mechanical processes, but which hold out little or no opportunity for improvement and no competence at maturity.
4. That wages received are so low as to force a parasitic life.
5. That but slight advancement is offered the fifteen-year-old over the fourteen-year-old child worker.

<sup>1</sup> Contributed by Professor F. M. Leavitt.

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